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USSR Report

NATIONAL ECONOMY



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ECONOMIC POLICY, ORGANIZATION, AND MANAGEMENT

PARTY'S ECONOMIC STRATEGY IN 12TH FYP RESTATED

Moscow PLANOVYE KHOZYAYSTVO in Russian No 8, Aug 86 pp 8-12

[Editorial: "The 12th Five-Year Plan as a Decisive Stage in Carrying Out the Party's Economic Strategy"]

[Text] The 5th Session of the USSR Supreme Soviet, 11th Convocation, has approved the State Plan for Economic and Social Development of the USSR Over the Period 1986-1990, detailed by years of the 5-year period, by USSR ministries, state committees, and departments, and by union republics, which had been drafted in accordance with the decisions of the 27th CPSU Congress and the Basic Directions of Economic and Social Development of the USSR Over the Period 1986-1990 and up to the Year 2000. The assignments envisaged in the plan fully guarantee performance of the main task of the 5-year period, whose essence is to raise the rates and improve the efficiency of economic development and to achieve a further rise in the prosperity of the Soviet people on that basis.

The address of M.S. Gorbachev, general secretary of the CPSU Central Committee, delivered at the June (1986) Plenum of the CPSU Central Committee, which was held on the eve of the session of the USSR Supreme Soviet, provided a thorough analysis of the postcongress development of Soviet society, and intensified the search for ways of achieving high efficiency and emphasized the immense role which the plan has in mobilizing the creative forces and initiative of the masses. "A special role," M.S. Gorbachev emphasized, "is being given to the 12th Five-Year Plan. The rates of socioeconomic development and the level of the people's prosperity will depend on the kind of foundation we lay during these years for carrying out radical transformations in the economy and for speeding up scientific-technical progress." (Footnote) (PRAVDA, 17 June 1986)

The role of the plan, which in a socialist society is the basis for pouring the energy of millions into a single stream aimed at achieving the most immediate and long-term targets, is accordingly enhanced as never before. Plans provide a clear and steady future for development of every work collective, every sector, and every republic.

The plan for the twelfth 5-year planning period is the result of an immense effort conducted in enterprises and associations, in ministries and departments, and in union republics to discover additional capabilities for speeding

up the growth rates of production, for raising efficiency, and for fuller satisfaction of the needs of society. As a consequence the upper level of the targets contained in the Basic Directions managed to be achieved with respect to most indicators, and they were even exceeded somewhat for industry and certain very important social indicators. For instance, over the period 1986-1990, according to the 5-year plan, the national income, industrial output, and capital investments will grow 22.1 percent, 25 percent, and 23.6 percent, respectively, as against 19-22 percent, 21-24 percent, and 18-22 percent, respectively, outlined by the Basic Directions.

The targets in the plan correspond to the scientifically sound strategy of the party for speeding up the socioeconomic development of society and for accomplishing a resolute change of direction of the economy onto the road of intensification. This is specifically confirmed by the fact that for the first time the entire growth of the national income is to be achieved during the 5-year period without increasing the size of the labor force in the sphere of physical production.

Uniform growth of planning targets from year to year of the 5-year period is ensured for the sectors of the economy and for the union republics. This optimum structuring of the plan makes it possible over 5 years to achieve a total national income 30 billion rubles greater than if it were structured on the old principles. Raising economic growth rates as a whole will be achieved because of the faster development of the priority sectors and certain economic regions. Paramount attention is being paid to the machinebuilding, fuel-and-energy, and agroindustrial complexes. All necessary physical, labor, and financial resources have been envisaged for their development. Recently the party and government have adopted a number of decrees: for radical reconstruction of metallurgy, for further chemicalization of the economy, for modernization of machinebuilding, for accelerated development of computers, for introduction of flexible production systems, rotary lines, automated design systems, industrialization of capital construction, and improvement of construction plans and estimates. The efforts of personnel in industry, in the entire economy, and in the bodies of management are aimed at carrying out these decrees.

One of the most important conditions for performance of the tasks which have been set is to accelerate scientific-technical progress, to apply its results to social production in the speediest way. The 5-year plan of every sector has established assignments which reflect the end results of using new equipment and technology, which imposes the necessity of showing greater independence at the respective levels of management in selecting and pursuing specific strategies in performing the tasks which have been set. At the same time there is to be a rapid growth in the output of the equipment capable of revolutionizing production itself. Application of progressive base technologies will increase 1.5-2-fold in the sectors of the economy, use of economical new materials will expend substantially, and the level of automation of production will double. The number of industrial robots will triple during the 5-year period. New technologies will be widely applied--electron-beam, plasma, pulse, biological, radiation, membrane, chemical, and so on, which make it possible to raise labor productivity many times over, to increase the

efficiency of utilization of resources, and to reduce the energy- and materials-intensiveness of production.

Automation combined with mechanization and application of new technologies is called upon to radically transform work stations during the 12th Five-Year Plan and to make the work of workers more productive, creative, and attractive. In the industrial sector alone about 5,000 automatic process control systems will be introduced. This approach is also regarded as a most important social task which the party is setting for itself.

Expenditures for science are increasing substantially. By the year 1990 they will reach almost 33 billion rubles, as against 24.8 billion in 1985, and at the same time the rates of their growth exceed 1.5-fold the growth rates of the national income.

Performance of measures related to scientific-technical progress will in industry account for two-thirds of the rise of labor productivity and a saving of 28.6 billion rubles of resources from reduction of production cost, as against 16.3 billion in the 11th Five-Year Plan.

Acceleration of scientific-technical progress in the economy is bound up with further development of the machinebuilding complex, with the updating of its production capability. It is here that all the urgent problems of the economy are focused today. As emphasized at the June (1986) Plenum of the CPSU Central Committee, unless machinebuilding is modernized in a short period of time, unless it is restructured for the manufacturing of new systems of machines and progressive equipment for all sectors of the economy, it is impossible to perform the tasks set by the congress. In view of this the plan has envisaged a 43-percent growth of the output of machinebuilding, which is 1.7-fold more than in the industrial sector as a whole. Capital investments in that complex have been set at 63 billion rubles, of which more than 30 billion are committed to retooling and reconstruction of existing enterprises. Replacement of the active portion of the sector's fixed capital will increase from 2.2 percent in 1985 to 9.7 percent in 1990, which will make it possible to update nearly 60 percent of the productive plant.

Improvement of the production potential of the machinebuilding complex will be accompanied by a saving on physical and labor resources and by improved use of fixed capital and production capacities, i.e., by increasing the efficiency of social production.

In the 12th Five-Year Plan a major portion of the economy's additional need for fuel and raw materials will be met through resource conservation. The indicators of the plan fully reflect the principle of the 27th CPSU Congress as to reduction of energy-intensiveness and metals-intensiveness of the national income. Conservation will account for 65-70 percent of the additional need for fuel and raw materials (the entire need for certain types). More attention is being paid to the problem of utilization of secondary resources, which in 1990 will replace 40 billion rubles' worth of primary raw materials, supplies, and fuel. It is possible to achieve more than 25 percent of the growth of the national income in the 12th Five-Year Plan by consistently conducting a policy of resource conservation.

The experience in the operation of sectors and regions of the country indicates that the tasks which have been set in the area of resource conservation are altogether realistic, since internal potential has not been altogether exhausted. A number of enterprises are still incurring direct losses of the most valuable raw materials and products. At the same time 13 billion m³ of casinghead natural gas are uselessly burned. Millions of tons of coal are lost during rail shipment. In agriculture product losses amount to nearly 20 percent. A great deal of electric power, heat, and water are consumed uselessly.

Beginning with the plan for the twelfth 5-year planning period the assignments for conservation of resources and for the level of their utilization become one of the main criteria in evaluating the performance of every enterprise and collective.

The 5-year plan has set forth an interrelated group of measures aimed at more optimum use of the immense productive potential and growing volume of capital outlays. By contrast with past 5-year plans, this one calls for a sharp increase in the efficiency of capital investments and a reduction of capital outlays per unit of the national income. The rate of reduction of the output-capital ratio in the economy will be reduced to less than half, and it will be altogether overcome in machinebuilding and light industry. The efficiency of the economy during the 12th Five-Year Plan will be in large part affected by the need to update fixed productive capital. In recent years capital has been updated slowly, and its wear has accumulated. This has led to exaggerated growth of the repair sector, which in the industrial sector alone cost 10 billion rubles, including 3 million rubles spent for repairing equipment still in service after the end of its rated service life. The older the equipment, of course, the lower the productivity of labor, and the more manpower is needed to produce one and the same volume of output. At present about 700,000 job vacancies exist in the industrial sector alone, and this at a time when the operation of equipment is on a one-shift basis for all practical purposes. And if the shift coefficient were increased to 1.7, then the number of job vacancies in the industrial sector would exceed 4 million.

The main road in the updating effort, as emphasized at the 27th CPSU Congress, is large-scale reconstruction of the sectors of the economy. By 1990 the share of outlays for retooling and reconstruction of existing production will increase to 50.5 percent of all capital investments for construction of production facilities, as against 38.6 percent in 1985. The substantial change of investment policy envisaged by the plan will make it possible to achieve radical shifts in the qualitative updating of fixed productive capital and to overcome the extremely adverse trend in the physical aging and obsolescence of fixed capital. During the 5-year period the absolute total amount of retirement of capital assets will be 240 billion rubles, as against 110 billion during the years of the 11th Five-Year Plan. Fixed capital in machinebuilding is to be updated with particular determination.

At the same time the task has been set of increasing the shift coefficient of the operation of equipment in machinebuilding. Up to now most machinebuilding enterprises have worked on one shift. At the June (1986) Plenum of the CPSU

Central Committee this defective practice was condemned, and the task was set of making the transition in machinebuilding to operation on two shifts in response to the initiative of the people from Leningrad, which was approved by the CPSU Central Committee. Given the need for radical improvement of the state of affairs in this area, the USSR Council of Ministers ordered USSR Gosplan and USSR Goskomtrud to prepare in the very near future specific proposals on measures concerning financial and nonfinancial incentives of work collectives, above all in the branches of machinebuilding, on behalf of broad-scale conversion of enterprises and associations to two- and three-shift operation.

The most acute and urgent problem is to improve product quality. This is a matter of paramount importance. Without radical improvement of quality any major production and social task becomes ever more problematical. Acceleration of scientific-technical progress is involved here, since design oversights, departures from the technology, the use of low-grade materials do not make it possible to guarantee the accuracy and reliability of machines. There are many products which our country produces in greater quantity than any other. But quite often the products sent for productive consumption are not strong enough, durable enough, economical enough, and they fall short of the best world examples, and that has to be offset by their additional output. As the scale of production grows, such costs become burdensome, since they lead on to the extensive road of economic activity. The party gives great political import to the fight for quality. This task, it was noted in the political report of the CPSU Central Committee to the 27th party congress must become a cause for every Communist, for every Soviet person, for all those who take pride in their work, who do not distinguish between the honor of the enterprise, the honor of the sector, and the honor of our homeland. The Politburo of the CPSU Central Committee and the USSR Council of Ministers have adopted a specific decree on product quality. Measures which are technical and economic in nature, the adoption of standards and product certification, pricing, and the system of financial and nonfinancial incentives are aimed at improving product quality. State extradepartmental approval of product quality is being introduced at enterprises.

During the 5-year period the share of industrial output in the superior-quality category is to increase 1.9-2.1-fold, the operating reliability of equipment is to be improved, and the introduction of comprehensive product quality control systems is to be by and large completed. The review of product standards is to be speeded up and they are to be oriented toward the best world attainments, the level of certification of industrial products is to be increased so that product quality is evaluated more objectively than it is now.

The work of planning authorities needs to be improved. At present the targets which are set are poorly linked to the level of product quality, and as in the past they are linked to value and quantity indicators. The system of remuneration and the bonus system of workers stimulate above all a quantitative growth of production, sometimes at the expense of quality. It is becoming increasingly complicated to solve this problem with the old methods. Vertical management connections are too overloaded, it is increasingly difficult to exert influence from the center on the level of quality of millions of different products. Reality is urgently demanding a strengthening of horizontal economic

ties, i.e., a strengthening of direct relations between the producers and the consumers of products. The letter of the Central Committee sent to party committees, to soviet and economic authorities, to trade union and Komsomol organizations, and to all the workers, calls for maximum efforts to be applied to this, since this is a nationwide task to be performed by all levels of management, all work collectives, and every worker.

Extensive use of the advances of science and technology and large-scale updating of plant and equipment create the physical foundation for a further rise of labor productivity in the economy. It will rise 23 percent between 1986 and 1990.

Mechanization and automation of production and the introduction of new technologies will alone substantially improve working conditions, and by 1990 they will free more than 5 million persons of manual work, which is more than double what was done in the last 5-year period. For the first time almost the entire growth of the output of industry and agriculture, the volume of traffic in rail transport, and the volume of work done in construction are to be achieved by raising labor productivity. This is one of the fundamental features of the new 5-year period, imposed by the demographic situation.

Over the period 1986-1990 the growth of labor resources will fall back and will amount to only 3.2 million persons. Were labor productivity to remain at the 1985 level, the economy would need more than 22 million additional workers.

It was noted at the 27th CPSU Congress that there is no shortage of manpower. But there is a low level of labor productivity, the organization of work is not high enough, incentives are ineffective, and superfluous jobs are created. Some enterprises, design offices, and research institutes have substantially more staff members than similar organizations abroad though they do the same amount of work. In work collectives where they are seriously concerned about improving the organization of work and work incentives and are improving discipline and exactingness, and are certifying job slots, they are discovering additional potential they previously did not know of. Additional sources for the growth of labor productivity are still sizable and diverse.

The CPSU Central Committee has adopted the Appeal to the Workers of the Soviet Union. It notes that a change of direction has been outlined in competition toward qualitative indicators of performance. Progressive collectives set the task of achieving the entire growth of the volume of production through technical progress, through maximum load on equipment, without increasing the consumption of raw materials and supplies or the number of workers. The movement to work 4 days this year without compensation to build housing, schools, hospitals, clubs, and athletic installations is spreading. Specific initiatives and actions of this kind enjoy the support of the entire people.

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INVESTMENT, PRICES, BUDGET, AND FINANCE

INVESTMENT SOURCES, TECHNIQUES ANALYZED

Moscow FINANSY SSSR in Russian No 7, Jul 86 pp 41-46

[Article by B.N. Agroponov, docent of the Moscow Order of Labor Red Banner Institute of the National Economy imeni G.V. Plekhanov: "Sources of Appropriations and Credit To Finance the Capital Investments of the Sector"]

[Text] The course set toward intensification, which was defined by the 27th CPSU Congress, presupposes attainment of final economic results specifically by increasing the return on capital investments, i.e., through a rise in their efficiency. The forms and methods of planning, distribution, and financing of capital investments are basic topics in this connection.

Analysis shows that it is not possible to solve the problem of increasing the relative share of capital investments made in existing production solely by restricting the construction of new enterprises and projects or by increasing the size of the production development fund. There has to be improvement in the entire sectoral system and of its basic components. The indispensable need for this step is dictated by the fact that the procedure now in effect for funding capital outlays preserves certain features of extensive reproduction of fixed capital. There are a number of reasons for this.

First, in the system which has been adopted the construction of new enterprises and investments in existing production do not have a uniform financial basis. It is assumed in advance that their planned size will be covered by the financial resources of enterprises or ministries, and should they be insufficient, with credits and resources from the budget. There do exist at the present time standards governing the financial sources which serve retooling. But the very approach to setting these standard rates has not been altogether refined. The calculation is not made at a scientifically sound rate, but in accordance with the situation as it stands. Accordingly, the transfers to this fund from depreciation for replacement and from planned profit are revised almost annually on the basis of the current level of retooling in the sector and, as economists have rightly observed, they have practically no linkage to the actual need for retooling in subsequent periods in view of the wear and technical level of the active part of fixed capital. (Footnote) (A. Brezhenko, "Problems in Development of Finances for Construction in the Context of Improvement of the Economic Mechanism," abstracts of papers delivered at an all-union scientific-practical conference, "Usileniye roli finansov

i kredita v planovoy ekonomike SSSR" [Strengthening the Role of Finance and Credit in the Planned Economy of the USSR], Moscow, 1985, p 132) In addition, a portion of outlays for retooling may be included in centralized capital investments and financed according to the usual procedure from depreciation and profit. This inclusion nullifies once and for all the normative functions of the production development fund.

Indeed on the whole in the machinebuilding branches operating under the new conditions profit and depreciation redistributed within ministries are still being widely used as sources of capital investments, and budget appropriations have been preserved. This "diffuseness" of sources is fraught with the danger of excessive investment demand.

Second, sources whose cost-accounting (khozraschet) functions are weak and which are not directly linked to the results of financial and economic activity of the sector's enterprises continue to be used to carry out new construction.

Another deficiency of the system for the funding and credit financing of capital investments in effect under the conditions of the economic experiment is the principle whereby a sector is practically deprived of the possibility of maneuvering money resources intended for financing expanded reproduction of fixed capital. The system has still been retained of rigid delimitation of sources for financing capital outlays to be made in the principal stages of the sector's scientific-technical progress--in the stage of research, design, and development, in the stage of existing production, and in the stage of acquiring new technology. This restriction on the mobility of financial sources for covering capital outlays can give rise to undesirable economic phenomena. First of all, a partial disproportionality when there may be a shortage of money resources in certain important stages of making outlays for scientific-technical progress for one reason or another, while an excessive amount is concentrated in others. This can hold back technical progress or result in unwise use of the resources for unplanned purposes. Second, an artificial hiking up of the need for external sources such as budget appropriations and long-term credits when at the same time uncommitted financial resources do exist in the sector as a whole.

The instructive materials in effect in the context of the economic experiment show that the previous approach to economic substantiation of long-term credit in the financial sources of capital investments has undergone little change. Restrictions on the granting of long-term credits which were worked out at an earlier date are still in effect. To be specific, if the capital outlays to expand existing enterprises or to build new ones are returned over periods longer than 5 years, then they are financed from the "own" resources of enterprises and the sector, and if they are insufficient, the outlays are covered with budget appropriations. The bank also restricts the credit financing for retooling enterprises with low profitability. Nor has there been a change in the procedure in effect earlier for repayment of long-term credits. In the case of new construction they are repaid from profit and depreciation for replacement, while in the case of retooling they are repaid from the production development fund (FRP). When we take into account that the FRP is at the same

time the source for financing noncentralized capital investments, the combining of two channels for use of the resources of this fund (for repayment and for financing) appreciably narrows the "own" financial base which economic authorities have for carrying out measures related to retooling and diminishes the motivation of enterprises to take long-term credits.

The system for financing and credit financing of capital investments which is in effect under the conditions of the economic experiment is in need of further refinement and must be built on the following basic principles.

First, create the motivation of enterprises, main administrations and the sector as a whole to use financial and credit resources first at existing enterprises. Second, meet the requirements of mobility and flexibility, adapt easily to the constantly changing financial conditions under which scientific-technical progress is taking place in the sector. And third, use a reliable financial barrier against unjustified capital investments.

At the present time reconstruction, retooling, and expansion of existing enterprises are planned and financed separately within centralized and noncentralized investments. This kind of planning and financial regimentation of investments within existing enterprises into separate directions of capital outlays tends to deprive the enterprise of the sense of prospects for development as a whole. The reorganization of production begins to take place piecemeal, and as a result instead of acquiring comprehensive production systems and the retooling of entire shops and enterprises, what happens is a protracted reconstruction project that goes on every year. Moreover, there have been many objections to the diffuseness and vagueness of USSR Gosplan's treatment of the very limits on individual outlays. Economic practice shows that in the context of existing production it is not always possible to delimit them with sufficient clarity either in the stage of preparing the technical documentation or in the actual process of carrying out the plans.

From the broad standpoint of the national economy all investments in existing production constitute modification and conversion of the fixed capital of industrial enterprises. There is only a differing degree or depth of its renewal. That is why expansion, reconstruction, and retooling must be viewed as internal varieties of the process as a whole.

New construction is another matter. Here existing fixed capital is not being updated, but a portion of new fixed capital, that which is the most technically refined, is constantly being added to the sum total of the existing fixed capital of the sector. It is therefore advisable to standardize the conditions for granting money resources to existing enterprises. Differences in the organization of the financing of retooling, reconstruction, and expansion of production not only artificially set one form of capital outlays in opposition to another one, but they also make it more difficult to correctly plan and effectively distribute the financial resources of the sector, and they make the system as a whole less manageable. The sources of money resources for capital outlays within an enterprise and the conditions under which they are obtained must be absolutely identical; only then do we have the real prerequisites for unifying all the forms of reproduction of fixed capital

as well as sources for the financing and credit financing of those investments at the level of the sector, the main administrations, and the enterprises in a single balance-sheet account. It becomes quite feasible and also considerably simpler to correlate the size of investments in value terms and the physical makeup of investments in fixed capital with respect to the main purposes, on the one hand, with the total size of money resources which individual enterprises and the sector as a whole have available for those purposes, on the other. On the basis of such a plan it will be possible to determine more accurately the limits on outlays for fixed capital and to redistribute money resources to the advantage of one purpose or the other.

The time has also come to reassess the procedure for planning state capital investments. The mechanical division of their planned volume into the centralized and noncentralized portions as a function of the sources for financing the particular types of outlays no longer meets present-day requirements.

The most acceptable and effective way would be to have USSR Gosplan approve in the sector's plans the overall limit on state capital investments and its breakdown by types of outlay: for new construction and for existing industrial enterprises. Jointly with the enterprises the main administrations must independently determine the channels which represent the most effective application of the resources, whether it be expansion, reconstruction, retooling, or some sort of mixed versions.

In this case comprehensive summary plans for technical development of the production of existing enterprises as a whole and for new construction, including computations and indicators reflecting the effectiveness of the measures intended, including also the growth of production and production capacities, the value and makeup of equipment and other necessary material and technical resources, which would be drafted by industrial ministries (on the basis of proposals of production associations, enterprises, and main administrations) and submitted as independent sections of 5-year plans, must become the basis for the plan of the sector's capital investments.

This approach will make it possible to incorporate the capital investment plan more organically into the overall system of the operational activity of existing enterprises.

It would seem that the entire sectoral system for financing capital investments needs to be given a more active regulating role. Presumably the level of the impact of the various forms of financing on the effectiveness of social outlays will be in direct proportion to the directness of the connection between the sum total of the outlays and the results of the final activity.

The entire mechanism for self-financing of the sector and individual enterprises and the pay-as-you-go principle are built on this. This is as it should be. But there is something else that should not be forgotten. Profit is the universal source for financing a broad range of various outlays, including capital outlays. The desire of clients to increase the volume of capital investments is opposed only by the proportion of profit in the plan and the opposition of central planning authorities. When the proportion of profit

at existing enterprises exceeds as a rule the need for money resources for capital investments, there is a latent tendency for hiking up the volume of capital investments. Moreover, linkage of the capital investment plan to the plan for financing presupposes in advance that their entire volume envisaged by the national economic plan will be covered by the money resources of enterprises, main administrations, or ministries, and should they be insufficient--with bank credits and budget appropriations. That is why development of the principles of pay-as-you-go and self-financing have not removed from the agenda the question of developing reliable financial barriers to excessive investment demand, to the squandering of investments, and to the growth of unfinished construction.

The sectoral organization of sources for the financing of capital investments must be structured not merely as a passive connecting link between the amount of technology to be acquired and the money to cover it, but rather must figure as an active regulating element in the stage of compiling the national economic plan, an element on which increasing the return from the entire production cycle largely depends; in other words, it must be oriented not only toward the fulfillment of plans, but also toward their optimization.

Successful solution of this problem makes it necessary to place the entire mechanism for money coverage of the sector's capital investments on a normative financial basis. Even in the initial stage of work on the plan the sector must have a clear idea of its own financial resources which it can use for this purpose. These criteria governing "own" financial resources for capital investments could serve as a kind of reference point in determining the volume and type of capital investments.

As existing enterprises the financial standards must be linked above all to the circulation and turnover of functioning fixed productive capital and they must be set by the standard rates of wear, renewal, and accumulation of that capital. Depreciation for replacement must be the basis of those standards, since it is directly linked to the movement of fixed capital.

The rates for depreciation of fixed capital now in effect make it possible to determine in the first approximation the need for retooling and reconstruction of existing enterprises and can serve as the point of departure for establishing the financial criteria for capital investments. But only a point of departure, since there are a number of objective economic factors whose appreciation makes certain adjustments in its use.

It would be wrong to leave all depreciation at the disposition of enterprises. After all, some of them--new ones or those which have recently undergone reconstruction--have up-to-date equipment and therefore are not in need of substantial resources for retooling; others by contrast have been in operation for a long time, have aged, and are in need of fundamental reorganization; and finally there are still others which are in a transitional stage between the former and the latter. To identify the financial criteria of capital investments with the sectoral depreciation fund could result in the occurrence of financial surpluses in the economy. At the same time it would be a mistake to set those standards separately for each enterprise. That procedure would

require frequent, if not annual, adjustments of the standard rates depending on the current level of reconstruction or retooling and would turn it into an ordinary source of financing. One of the ways of differentiating the standard financial rates of capital investments might be the procedure whereby all enterprises in the sector would be divided into three or four large groups as a function of the age of their capital and the degree of wear. Quota amounts of depreciation deductions for replacement that would be left at their disposition as a standard allowance would be established for each group. In the group that includes enterprises with the maximum wear on capital all 100 percent of depreciation deductions might be left at their disposition, and some part of them in the other groups. The specific criteria used in the grouping and the size of the quotas are another question.

If the amount of financing of capital investments is restricted solely to the standard allowances, there will inevitably be a financial strain in the sector. Planned requirements may be greater than the standard allowances. The point is that the renewal of equipment and technology takes place in various ways: gradually and by leaps, when the application of fundamentally new technology requires a radical reorganization of the entire enterprise or of a substantial part of it as well as quite large money resources.

These gaps can be balanced by means of sources which are "external" to the standard allowance. Development of the principles of pay-as-you-go and economic incentives suggests that planned profit and long-term credit might be such sources. Since the central link in this system is the standard financial allowance for capital investments, planned profit, and long-term credits perform balancing functions here. It is important to structure the system in such a way that they do not contradict, but advantageously supplement the regulating attributes of the standard allowances.

One of the ways of solving this problem might be as follows. Depreciation for replacement (in the form of the standard financial allowance) and long-term credit figure as sources for financing capital investments at existing enterprises. Planned (calculated) profit is the source from which the loans are repaid. This distribution of functions between them takes into account their peculiarities and presupposes extensive participation of each of them in the process of reproduction of fixed capital.

A typical feature of the system proposed is the "clear" division of responsibilities among the standard allowances, planned profit, and long-term credits. By contrast with the system now in effect there would be a noticeable qualitative and quantitative regrouping of financial resources. The importance and relative share of depreciation and bank credits would increase, while at the same time there would be a reduction of the relative share of planned profit, the share of which that is made available would be used to repay the loans. A division is made between sources of finances and sources for repayment of credit. The question arises: Would this tend to detract from the stimulative functions of the system as a whole? It would not seem so. It is incorrect to say that depreciation is absolutely independent of the quality of enterprise performance. The inflow of depreciation is directly related to the process of sales and to attainment of the planned volume of output. Moreover, there are

a sufficient number of other levers which motivate enterprises to fulfill the profit plan.

What advantages does the proposed system afford?

First, we get a flexible and mobile financial system for furnishing money for capital investments at existing enterprises that easily adapts to the rapidly changing conditions under which scientific-technical progress takes place. Second, a system based on guaranteed sources and normative principles. A simple system that eliminates the multiplicity of sources, and consequently is also manageable. It makes it possible to do 5-year and prospective planning of financial resources for capital construction realistically and to incorporate it into the normative method of profit distribution.

The successful operation of such a system necessitates a more active role for depreciation. It would be advisable to raise the rates of depreciation deductions for replacement on the basis of economically progressive intervals for renewal of the products of machinebuilding. The 1985 decree of the USSR Council of Ministers entitled "On Working Out New Rates of Depreciation Deductions on the Fixed Capital of the USSR Economy" envisages major changes in depreciation policy. It saw the need for revision of the rates of depreciation deductions, and they will be introduced as of 1 January 1988. Under the decisions that have been made the new rates for depreciation deductions are envisaged only for full replacement of fixed capital. All types of major repairs are to be made from the resources of the repair fund, and these outlays are to be included in the production cost.

The role of long-term credit is increased in the system we have proposed. It is indispensable to free long-term credit of all artificial overlays which have stood in the way of its involvement in the economy, to make it simpler to obtain this credit, and to revise the periods of time for use of the credit.

Since resources may accumulate for capital investments at existing enterprises, it is advisable that these resources be concentrated in a special fund. The production development fund might be such a fund. It is important here to preserve its targeted purpose and relation to depreciation for replacement. We cannot agree with the proposals of economists for expanding the functions of the production development fund and turning it into a multipurpose source of financing not only for capital investments, but also for the growth of "own" working capital, expenditures to put new products into production, and to conduct R&D. In this case it loses its normative attributes, and the financing of capital investments in existing production will itself be deprived of clear planned limits.

We should dwell in particular on the problem of financial reserves. In the context of the economic experiment responsiveness and maneuverability in use of financial and credit resources for retooling existing production becomes especially urgent. There is no sufficiently reliable money reserve for financing measures related to retooling in the sector. The rights of ministries and industrial associations with respect to planned redistribution of the resources of the production development fund of individual enterprises have been

substantially restricted. The resources accumulated by enterprises are not subject to confiscation.

Curtailling the rights of ministries and main administrations to redistribute resources gives enterprises greater motivation to use their own money resources in a more optimum and judicious manner, and it also creates for economic authorities a financial base of their own for carrying out major technical measures. Preservation of this principle will undoubtedly have an influence on the future development of the cost accounting of enterprises.

But it would be incorrect, as has been done in the normative documents of the experiment, to eliminate altogether the possibility of redistribution of the resources of the production development fund within the sector, thereby depriving the sector and the main administrations of sufficiently reliable reserve funds. Meanwhile the need to build them up arises out of the specific nature of the sector's activity--its multilevel nature and the diversity of the subsectors. The complicated economic mechanism within the sector, which includes a large number of enterprises, scientific, drafting and design, construction and assembly, and other organizations, is in the process of production and economic activity subjected to the impact of various factors related to production, to planning, to material and technical supply, and to financing that may result in a temporary shortage of financial resources.

During the construction or retooling of individual enterprises during the year there inevitably occur additional needs for resources because the plan for this work has been overfulfilled or equipment has been installed ahead of schedule. Enterprises may have an urgent need to retool shops or purchase machine tools in order to manufacture new products for which other plants in the subsector, sector, or the national economy as a whole have an acute need. At the present time neither the production associations, nor the main administrations, nor the ministry have guaranteed resources for those purposes. To be sure, the instructions on methods of carrying out the economic experiment point out that the financing of additional outlays for retooling fixed capital may be made if there is good economic reason out of depreciation deductions for major repairs over and above the limits of state centralized capital investments. Moreover, bank institutions may extend credits to associations within the limits of the plans for long-term credit financing over and above the limit of state capital investments to carry out highly effective measures to retool existing enterprises. But the strict planned regulation of depreciation for major repairs and difficulties in obtaining long-term credits over and above the limits of state centralized capital investments do not afford a basis for considering these resources to be sufficiently stable reserve amounts for the sector. These money resources may be drawn into the economy as sources of noncentralized capital investments only as one-time financial resources used on an episodic basis. This does not eliminate the need for a guaranteed money reserve.

Nor can supplemental inflow into the production development fund resulting from overfulfillment of planning targets be regarded as a substantial financial reserve. The reason is that depreciation deductions represent the largest share of financial sources for formation of the FRP. Additional inflow of

money, then, which might be regarded as additional reserves, could only come mainly from profit. The negligible size of the latter's share in sources for financing the production development fund also means that the proportion of that increase is small.

Aside from the general reasons, there are also a number of other reasons why it is advisable to create financial reserves in order to provide capital investments for retooling on a planned basis.

First, in the context of the 5-year planning period and introduction of the principles of self-financing and the methods of normative distribution of profit, it is a rather complicated matter to fully foresee possible changes in the sector's need for money resources. In the process of fulfillment of the 5-year plan unforeseen expenditures requiring additional amounts of money arise inevitably.

Second, identical rates of deductions from profit and depreciation for replacement credited to the production development fund are at the present time broken down to all associations and enterprises. This places enterprises in unequal initial conditions in carrying out measures for reconstruction and retooling. New enterprises are afforded more advantageous conditions, while associations and economic authorities with obsolescent and more worn-out equipment face less favorable conditions. This kind of artificially created economic differentiation intensifies the elements of economic risk when outlays are made for retooling.

It would seem that the formation and use of production development funds centralized at the level of the ministry, main administrations, and associations would help to broaden their capabilities in maneuvering financial resources intended for noncentralized capital investments. The allocation of additional money resources from the reserve would in a number of cases make it possible for the financial administration of the ministry or associations to independently and responsively deal with individual problems in capital construction, and ultimately this makes capital outlays more effective and speeds up the date of activation of production capacities.

At the level of the primary management link (the production and scientific-production association) it is advisable to intensify the centralization of the production development fund, which makes it possible to use the resources of the fund more optimally for retooling of enterprises under a unified plan for the development of the association's production. At that level of management, because of the rather rigid economic and organizational dependence of the individual production units within the unified cost-accounting complex, centralization of the resources of the production development fund must reflect centralization of functions in the area of capital investments and the technical development of associations.

The problem of centralization must be solved in a different way at the level of the main administrations and the ministry as a whole. The need to form a reserve of the production development fund must be related here mainly to the building up of resources against the occurrence of unforeseen circumstances for reasons beyond the control of associations and enterprises, as well as for partial redistribution of resources from one association to the other, should the need arise.

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USE OF INCENTIVES TO ACCELERATE AGRICULTURAL PRODUCTION

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[Article by A. Yugay, Doctor of Economic Sciences, professor and head of a department at the All-Union Scientific Research Institute of Agricultural Economics: "Material and Moral Incentives for Accelerating the Intensification of Agricultural Production"]

[Text] The intensification of agricultural production is a many-sided process. It is achieved through improvements in the use of existing and newly introduced production resources, the introduction of intensive technologies, pedigree and high quality renovation of livestock and agricultural crops, raising the quality of products, improving the storage facilities for them and so forth. But these are general conditions. The specific factors and methods and conditions for accelerating intensification are considerably more extensive and their list, beyond any doubt, differs in terms of farms, rayons and oblasts. Thus, on one farm a solution should ideally be accelerated for the problem of high quality renovation of the agricultural crops, which will raise production efficiency considerably, and on another farm the threshing floor should be mechanized, since it is in this particular production sector that a great amount of manual labor is expended and large quantities of grain lost.

A singular and necessary condition for all social production for accelerating intensification is that of skilful and conscientious work performed by each worker and the use of a proper approach in carrying out his assigned tasks. Man, his attitude towards work and interest in the final results of labor -- these are decisive and dynamic factors with regard to the production process. "The chief motive force for progress and its very soul has been, is and will continue to be man" -- reads a statement in the Political Report by the CPSU to the 27th party congress (Materials of the 27th CPSU Congress. Moscow Politizdat, 1986, p 31).

For the purpose of stimulating the human factor, a great amount of work is being carried out in the agrarian sector of the economy aimed at converting over to the new methods for administration and management. And certainly, considerable importance is attached here to improving the material and moral incentives for workers. Let us examine the more effective methods for stimulating workers in order to accelerate the process of branch intensification.

A great amount of experience accumulated over a period of many years by the country's kolkhozes and sovkhoses underscores the fact that high production

efficiency is achieved through consistent observance of cost accounting principles in the use of available resources and material responsibility of workers for all derelictions committed. In the process, an important role is played by favorable relationships within a collective and by a positive socio-psychological climate. We consider successful solutions for all of these problems at each kolkhoz and sovkhoz to be one of the principal directions to be followed for raising the effectiveness of collective material and moral incentives and strengthening its effect on the production intensification process. A collective contract will be effective only if these conditions are observed.

We believe that this theory is sound since the effect of wages on the production process is realized not on an isolated basis but rather as part of an overall complex, within the system for the entire economic and organizational-administrative mechanism for management. It was by no means an accident that the measures adopted in the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Further Improvements in the Economic Mechanism for Management in the Country's Agroindustrial Complex," for improving the material and moral incentives for labor, were aimed to a considerable degree at strengthening cost accounting principles in the use of funds for wages.

It is recalled that the planning for labor expenditures and wages was carried out based upon the actual expenditures, which were defined more precisely each year based upon their limit for wages, established by the state planning organs. The planning for the level achieved certainly took into account the actual production conditions, but the absence of a sound base when determining the expenditure limits failed to acquaint the farm leaders and specialists with the constant need for improving the production technology and organization. Moreover, an overexpenditure for wages was as a rule covered by the reserves of a higher organization. Similar practice in the allocation of regular subsidies had substantial shortcomings: it was not oriented towards the objective need for cost accounting use of the resources allocated.

In conformity with the conditions adopted for the enterprises on the whole, the plans call for cost accounting principles for the formation and use of resources for wages. Commencing in 1987, the RAPO's /rayon agroindustrial associations/ will determine for the farms the normative expenditures for wages per 100 rubles worth of agricultural products sold (gross). The norms established are stable for the five-year plan and on their basis the farms determine the total amount of funds to be used for wages. In the process, a savings in the wage fund (taking into account the actual output obtained) is added in equal amounts to the material incentive and reserve funds. An overexpenditure of funds for wages (taking into account the output obtained) is made up by the enterprise using the above-mentioned funds and in the case of a shortage of such funds -- by reducing the bonuses computed for the collective.

In accordance with the conditions stipulated in the decree, a closer link is expected between wages and the labor productivity level. This is a very important condition, since in agricultural production there is an unfavorable trend towards an increase in wage expenditures per unit of output (in comparable prices), despite considerable growth in the technical equipping of the branch. Thus wage expenditures per 100 rubles worth of gross output (in comparable

1973 prices) during the 1966-1970 period for sovkhozes of the USSR Ministry of Agriculture on the whole amounted to 31.5 rubles, during 1976-1980 -- 39.7 and during 1981-1984 -- 43.0 rubles, that is, from 1966 to 1984 it increased by 36.5 percent. During this same period, they increased at kolkhozes by 40.7 percent. In the process, the wage level at sovkhozes increased by a factor of 2.3 and at kolkhozes -- by a factor of 3.5. The productivity of agricultural labor increased by a factor of only 1.9.

In order to develop more favorable trends, it is stipulated that if the rate of growth in average wages exceeds the rate of growth in labor productivity, a corresponding portion of the material incentive fund will be placed in reserve by the enterprise for use the following year for stimulating a further increase in labor productivity and production efficiency or it can be added during the current year to the fund for social-cultural measures. Beyond any doubt, the practical realization of this situation will raise the role and importance of material and moral incentives in behalf of the intensification of social production.

It should be emphasized that at the present time all of the conditions have been created for achieving unity in computing current earnings for workers attached to primary contractual collectives and for farm leaders and specialists. Whereas earlier the leaders and specialists received their full salaries regardless of the final results, today they are given advances throughout the year in the amount of 80 percent of their established official salaries and the remainder -- taking into account the actual results obtained.

A similar principle is being introduced for workers attached to rayon agro-industrial associations and agroindustrial committees of oblasts, krays and autonomous republics. The amount of the advance is established at the level of 90 percent.

According to conditions which existed earlier, the issuing of bonuses for savings in expenditures was carried out in the amount of up to 25 percent of the total amount of the savings in field crop husbandry and up to 40 percent for livestock husbandry. In conformity with the new system, the amount of the incentive is increased to 70 percent. In the process, the savings in expenditures per unit of product should be determined by comparing the actual expenditures against the normative or planned expenditures. At the same time, the plans call for an overexpenditure of material-monetary resources by a brigade or farm to be reimbursed using funds set aside for wages and the issuing of bonuses.

At the present time, for realizing a savings in the use of GSM $\overline{\text{fuel}}$ and lubricating materials, assuming observance of the agrotechnical requirements for the quality of the agricultural work carried out, a tractor operator-machinist is paid 70 percent of the value of the GSM saved, a brigade leader for a production brigade -- 7, an assistant brigade leader -- 3, a foreman-adjuster -- 5 and a refuelling specialist -- 3 percent of the value of the GSM saved by the brigade and for workers attached to repair workshops and engaged in regulating fuel equipment -- 5 percent of the value of the GSM saved on the farm as a whole.

For having tolerated an overexpenditure, a tractor operator-machinist forfeits from his earnings 50 percent of the value of the GSM overexpended by him, a brigade leader -- 10, his assistant -- 5 and a refuelling specialist -- 5 percent of the value of the GSM overexpended by the brigade.

The recommendation has been made to have the bonuses for savings and the withdrawal of amounts from wages for overexpenditures carried out at the end of each quarter. If during the next quarter a savings in GSM compensates for an overexpenditure tolerated during the past quarter, then a recalculation is carried out followed by the return of the amount withheld earlier for the overexpended GSM.

The plans call for additional conditions for payments in kind for workers attached to contractual collectives and the system and amounts for awarding bonuses for production profitability are abolished. All of these material incentive measures are aimed at raising the effectiveness of the collective contract and reinforcing the cost accounting principles of management.

In the decree concerned with improving the economic mechanism for management in the APK [agroindustrial complex], emphasis is placed upon the need for more extensive use of wages which are dependent upon gross income, as a payment form that promotes the thrifty use of material resources, the introduction of progressive technologies and so forth. Let us examine the essence of this form of payment and let us analyze the experience of farms which employ it.

It is known that the value of gross output includes three elements: material expenditures, funds for wages and profits. Gross income, which is determined based upon the value of the gross output of an agricultural enterprise or its subunits, less the material expenditures for the production of goods, appears as value that is newly created by live labor and is the principal source for expanded reproduction and for satisfying the requirements of workers. The greater the gross income, the more high quality products are produced and sold and the fewer the expenditures required to produce those products.

Hence, in order to increase gross income, growth must be achieved in the production of goods together with the thrifty expenditure of material and monetary resources. On farms where the opportunities for increasing output yield are limited, growth in gross income will be achieved mainly by lowering expenditures. Thus, wages according to the norms for withholdings from gross income are cost accounting in nature. They take into account the production volume, the quality of the products and the expenditures involved.

Gross income, as a criterion for the level of management, makes it possible to combine the interests of rank and file executive agents, specialists and leaders of all ranks and direct their initiative and creative potential towards the production of a maximum volume of net product, which is a source for growth in social production and in the well-being of the people. The system of wages based upon gross income combines very well with the progressive form for labor organization -- the collective contract.

Wages based upon gross income is being employed at individual kolkhozes in the Ukraine, the RSFSR, Kazakhstan and some other regions of the country. Included

among those farms where such wages are effective is the Kazminzkiy Kolkhoz in Kochubeyevskiy Rayon in Stavropol Kray.

The proportion of expenditures for wages from the gross income obtained is determined here based upon the actual average data for the last 3-5 years. It includes the principal wage, all types of additional payments and bonuses from the wage and material incentive funds. The amounts of the established withholdings are stable for 5 years and they are determined for each agricultural crop, for the various types of livestock husbandry products and for the work and services performed by service subunits. The established withholding amounts are reviewed when changing the level for the state purchase prices.

The use of wages based upon gross income and the implementation of a complex of organizational-technological measures aimed at intensification have made it possible for a farm to achieve success in the production of goods. Compared to the indicators for the previous five-year period, the grain crop yield increased by 9 quintals per hectare and that for sunflower seed -- by 4 quintals per hectare. The productivity of the cows increased by 982 kilograms and the average daily increase in live weight in one head of cattle -- by 113 grams. Unfortunately, the production costs for individual types of products increased and yet the rates for this increase were considerably lower than that for farms throughout the rayon.

Compared to the 10th Five-Year Plan, during the 11th Five-Year Plan the kolkhoz increased its average annual gross production of goods by 48.0 percent, gross income -- by 63.2 and net income -- by 198.3 percent. The proportion of expenditures for wages in gross income during the 1981-1985 period amounted to 58.1 percent (the average during the 1976-1980 period was 67.9 percent).

A condition for the effective use of wages based upon gross income, as an all-round indicator for evaluating the annual operational results of subunits on a cost accounting basis, is the establishment of a sound proportion for withholdings for the collective wage fund. If this condition is not observed, then the total amount of the principal and additional earnings computed for each collective will not conform to the operational results of farm subunits.

When determining the proportion of gross income allocated for wages, the following methodological solutions (variants) are possible:

...the proportion of gross income for wages is formed based upon the actual proportions for the distribution of newly created value for a specific farm (branches within a farm) during the preceding 3-5 years;

...the norm for withholdings from gross income for wages is established based upon the use of expenditure norms for wages per 100 rubles worth of output, or based upon the expenditures for each type of product developed on the basis of technological charts.

Of the recommended variants for determining the proportion of gross income allocated for wages, we consider the second one, the one based upon norms, to be most sound. The first variant for determining the resources for wages

reflects specifically the expenditures at each farm. However, quite often this indicator reflects not only the objective conditions but also mismanagement and outdated technology (not in keeping with the technical equipping of a specific sovkhoz or kolkhoz). This fact must be recalled by the farm leaders and specialists when handing down a decision concerning the selection of a specific variant for determining the wage expenditures based upon gross income.

It is our opinion that the following fact should be noted when studying, publicizing and introducing the experience of the Kazminskiy Kolkhoz into operations. The farm achieved high production results owing to the fact that the management mechanism, the organizational mechanism for administration, the nature of the administrative decisions handed down and the organizational forms for the functioning of the primary production subunits promoted the implementation of the framework for wages based upon gross income obtained. This farm succeeded in acquainting each worker with the need for increasing the total amount of gross income, laborious and painstaking work was carried out here in connection with objective production planning and the responsibility of each worker was raised.

Herein lies the secret for success. It is realized only by those labor collectives in which the introduction of the new conditions for material and moral incentives is reinforced by appropriate organizational work.

In the materials of the June (1986) Plenum of the CPSU Central Committee, emphasis is placed upon the need for issuing incentives more actively for savings realized in the use of raw materials and other materials. This is an important direction to be followed for raising production efficiency and it is also a necessary condition for production intensification. In this regard, definite practical interest is being displayed in the experience of those enterprises which employ the residual principle for allocating funds for wages, with use being made of accounting prices.

The essence of the system consists of the following: accounting prices (at the level for normative direct expenditures, taken into account directly in the brigade) are established for each type of product produced on the farm. When summarizing the operational results, all of the output produced by the brigade is evaluated according to the established accounting prices, with the value of the actual material expenditures being deducted from the total amount obtained. The difference constitutes the wage fund for the specific primary collective. In the process, any savings or overexpenditure is directly reflected in the earnings and this beyond any doubt promotes the thrifty use of material resources.

Similar conditions for wages and material incentives were introduced into operations in 1983 at the Za Mir Kolkhoz in Shalchininkskiy Rayon in the Lithuanian SSR, with the participation of scientists from the Lithuanian Scientific Research Institute of Agricultural Economics. The new wage has been introduced mainly in field crop husbandry, in a repair workshop and in a motor vehicle garage. On the farm, the agricultural products produced by the brigade are evaluated according to the accounting price conditions established at the level for the actual production costs in the brigade over the past 3 years. The accounting price for 1 quintal of grain is 9 rubles, potatoes -- 8, cereal grass seed -- 50, 3d class hay -- 2.7, 1st class hay -- 4, straw -- 0.7,

fodder from perennial grasses cut down prior to 5 June -- 1.35, prior to 15 June -- 1.12 and following 15 June -- 0.9 rubles.

Income from which material expenditures (amortization, electric power, instruments and others) are deducted is formed monthly in the repair workshop in accordance with approved norms. The remaining amount is distributed among the members of the contractual collective.

In the motor vehicle garage, income norms have been established per ton-kilometer completed and per ton of freight transported and these are differentiated for each group of machines. A driver's income is computed in accordance with the mentioned norms and in conformity with the volume of transport work carried out and from this amount the expenses for GSM /fuel and lubricating materials/, spare parts, use of the garage, washing and so forth are deducted. The amount left over is the monthly earnings of each driver.

The use of this system promoted an improvement in the results of the kolkhoz's production-financial activities. Thus, compared to the indicators for 1982, in 1984 the grain crop yield increased by 3.7 and potatoes -- by 105 quintals per hectare. Compared to 1982 when the grain crop and potato yields exceeded the average rayon indicators by 2.2 percent, in 1984 they exceeded the latter by 14.2 and 19 percent respectively. Improvements took place in the production cost indicators. Compared to 1982 when the production costs for the grain and potatoes produced at the kolkhoz were higher than the average rayon level by roughly 10 percent, in 1984 they were lower by 2.4-4.1 percent.

On the whole, when positively evaluating the results of the kolkhoz's production activities using this system, special attention must be given to the following circumstance.

The organization of wages according to the residual principle requires a very thorough approach with regard to determining the accounting price level for the products produced. Importance is attached to ensuring that they objectively reflect the required level of expenditures for their production, excluding mismanagement and inefficient utilization of resources. It is our opinion that the accounting price for products produced should as a rule be formed based upon an intensive technology. Otherwise, various economic distortions are possible which can bring about a sharp increase in expenditures for wages without corresponding growth in the volume of goods being produced.

The correctness of this statement, which at first appears to be contradictory, is borne out by the experience of the Za Mir Kolkhoz. This farm achieved positive successes in raising production and lowering production costs. However the rates for raising wages turned out to be clearly inflated compared to the growth in production (which in our opinion was caused by derelictions during the process of establishing the accounting price level). Thus the farming output produced in 1984 was greater than that in 1982 by a factor of 1.27, while the expenditures for wages increased by a factor of 3.2. In 1982 the wage expenditures per ruble of field crop husbandry output amounted to 20 kopecks and in 1984 they increased by a factor of 2.5 and reached 50 kopecks.

In order to avoid such negative trends in the growth of expenditures for wages, when issuing wages based upon the residual principle one should not be distracted

by the establishment of accounting prices at the level of the brigade's actual production costs. In such a case, it is our opinion that a differentiated approach is needed. If at a specific farm the production process has been organized for a rather efficient intensive technology, cost accounting has been introduced and expenses make it possible to carry out production operations on a profitable basis, the actual expenditures in all probability can be used when forming the accounting price level. Unfortunately, however, we have many farms and production subunits where the actual expenditures reflect not the objective production conditions but rather elements of inefficient management. And it is hardly correct in such instances for all of the production expenses (including expenditures caused by mismanagement) to be taken into account when establishing the accounting price level. For example, at the Osechenskiy and Cherentsovskiy sovkhoses in Vyshnevolotskiy Rayon in Kalinin Oblast, the evaluative grade for arable land according to feed unit yield equalled 25.6 and 23.4 respectively and the fixed productive capital of an agricultural nature per 100 hectares of agricultural land amounted to 56,100 and 44,200 rubles. The differences were negligible, within the limits of 10-20 percent. Both farms have comparatively low indicators for their agricultural crop yields. Moreover, labor expenditures per quintal of grain at the Cherentsovskiy Sovkhoz turned out to be higher than at the first farm by a factor of 3.45 and per quintal of potatoes -- by a factor of 1.6. Such differences in expenditures, in the absence of substantial corrections, can hardly serve as the basis for the distribution relationships for workers at the mentioned farms.

Thus, for farms desiring to introduce the residual principle for allocating funds for wages, considerable importance is attached to employing a sound approach when determining the accounting prices for primary production subunits. The following methodological conditions are recommended for use as one of the variants.

The accounting prices are determined by farm specialists and must be based upon a progressive technology (taking into account the true availability of production resources at a farm). If in the process the actual expenditures during the preceding period are taken into account, then all of the irrational expenses must be excluded from them.

The established accounting prices must promote profitable and efficient production management, that is, they must ensure that an agricultural enterprise has the savings required for expanded reproduction. Based upon this position, it follows that the accounting prices for each type of product must, at the very least, ensure for an enterprise the profitability level prevailing in the specific rayon. For example, the following profitability level prevailed in a rayon: for grain -- 40 percent, cattle meat -- 50, sugar beets -- 30, vegetables -- 20 and sunflowers -- 75 percent. In our opinion, the established accounting price amounts must ensure the indicated parameters for efficiency.

Since the accounting prices are established directly for workers attached to primary production subunits, they must be computed without taking into account the general-farm and general-production expenditures. Allow us to cite some examples in the determination of accounting prices, which may prove to be useful for production.

The production profitability for grain in a rayon (zone) is 40 percent of the purchase price -- 10 rubles for 1 quintal of wheat grain of basic condition. In the overall expenditures for grain production, direct expenditures account for 70 percent and general-farm and general-production expenditures -- 30 percent. For the given initial parameters, the established price for 1 quintal of wheat grain must compensate fully for the grain production expenditures and it must additionally provide 40 percent savings for the enterprise. A total of 140 percent. If 10 rubles can compensate for 140 percent of the expenditures (70 percent direct + 30 percent indirect and 40 percent profit), then 70 percent of the direct expenditures (accounting price base) will amount to 5 rubles ($10 \text{ rubles} \times \frac{70}{140}$). Hence it follows that the accounting price for 1 quintal of wheat of basic condition can be established at 5 rubles. The accounting price for wheat of a higher condition can be raised (proportional to the established purchase prices) and reduced when the quality of the product declines.

The production profitability for sunflowers in a rayon (zone) reaches 75 percent and the purchase price -- 23 rubles for 1 quintal of seed of basic condition. The ratio of the direct, general-farm and general-production expenditures is 75 and 25 percent. In accordance with the given initial parameters, the accounting price for 1 quintal of sunflowers of basic condition can be established in the amount of 9.9 rubles ($23 \text{ rubles} \times \frac{75}{100}$).

The purchase price for late cabbage sold in September is 8 rubles per quintal. The production profitability in the rayon (zone) is 20 percent. The ratio of the direct and indirect expenditures is 65 and 35 percent. The accounting price for 1 quintal of cabbage can be established in the amount of 4.3 rubles ($8 \text{ rubles} \times \frac{65}{120}$).

The production profitability for milk in the rayon (zone) equalled 25 percent. The purchase price for 1 quintal of milk of 1st grade quality and basic fat content was established in the amount of 31 rubles. The ratio of the direct and indirect expenditures for milk production on the farm is 65 and 35 percent. The accounting price for 1 quintal of milk of 1st grade quality and basic fat content can be established in the amount of 16.1 rubles ($31 \text{ rubles} \times \frac{65}{125}$).

At the present time, the leaders of agricultural enterprises have been authorized to develop and employ (with the permission of a higher organization) their own measures for issuing bonuses to workers, instead of the conditions called for in the standard statute, measures which take into account the specific conditions found on a farm. It is our opinion that this trend in the organization of wages for agricultural labor is very promising, especially in view of the need for improving cost accounting procedures in the utilization of the resources and funds allocated and also for the more extensive introduction of the collective contract in kolkhoz and sovkhoz production. It will make it possible when developing effective measures for issuing material and moral incentives to take into account more completely the diverse production conditions found in the various regions of our country, conditions which are almost impossible to take into account in a single standard statute dealing with wages. When developing more effective measures for material and moral incentives directly on the farms (taking into account the specific production conditions), the following conditions should apply:

...the use of more improved conditions for issuing bonuses is carried out by a farm within the limits of a definite wage fund. When developing the conditions for issuing bonuses from the wage fund, the actual and real opportunities for using resources from a material incentive fund must ideally be taken into account;

...the conditions developed for issuing material and moral incentives, while intensifying the link between the earnings of workers and the final production results, must at the same time promote a simplification of the system for computing the bonuses, ensure stability in the established conditions and bonus amounts and bring about a gradual conversion over to issuing incentives from a single source;

...the measures introduced for issuing material incentives must interest to a greater degree the workers attached to cost accounting subunits in achieving a more extensive introduction of intensive technologies, optimum production planning and greater use of well-founded norms.

It must be remembered that the interests of the national economy require rhythmic and coordinated work by all enterprises functioning within the APK system. Only under these conditions will it be possible to achieve high final results and an acceleration in production intensification. With further development of the processes of inter-farm cooperation and agroindustrial integration, a considerable increase will take place in the need for arousing material interest in the executive agents of various production subunits and enterprises engaged in social production in obtaining greater quantities of high quality final products.

A specific form for the final product of workers engaged in various technological stages of unified social production (production -- storage -- processing -- sales) is that form the production of which is fully dependent upon the efforts of the particular collective (farms, departments, brigades, teams and so forth). In the process, the quality requirements for the product produced during each technological stage must be established (determined) taking into account the requirements and interests of the final national economic product. For example, for brigade and team workers engaged directly in the growing of sugar beets (the principal final product from the standpoint of the national economy -- sugar), the production of sugar beets with the sugar content percentage being taken into account should be considered as the final product. For workers engaged in dairy cattle husbandry (in a brigade or farm), the production of milk taking into account the grade and fat content, output of calves and so forth should be viewed as the final product. And it is precisely these indicators that must provide the basis for developing the specific conditions for issuing material and moral incentives.

When determining the specific forms for the final product for workers attached to production subunits (brigades, teams, farms, departments and so forth) and engaged in various technological stages of unified production, a proper combination must be found for the principle of "unity of interests and personal responsibility." It is our opinion that unity of interests is best manifested in those instances where, when determining the requirements for quality and quantity for the specific final product being produced (during a technological

stage) for each production collective, the overall requirements for the production of the final product are more fully taken into account from the standpoint of the national economic interests. The personal responsibility of a collective (department, brigade and others) for its assigned sector of social production can be achieved easier if each production collective is responsible for that form of final product which is fully (or to a considerable degree) dependent upon its labor efforts.

One important factor for raising the labor and social activity of kolkhoz and sovkhos workers is that of extensive use of the various forms for issuing moral incentives. On a number of leading farms, extensive use is being made of such moral incentive measures as raising the flag of labor glory, issuing certificates, challenge pennants and congratulatory letters upon the successful completion of tasks, photographing leading workers alongside the red banner, awarding diplomas based upon the results of public inspections and competitions and issuing honorary titles such as "Best Kolkhoz Worker," "Best Young Worker," "Clever Foreman," "Master Tutor," "Collective of High Culture of Farming and Livestock Husbandry" and "Farm Veteran."

Great importance is being attached to informal types of incentives for high production indicators, which must be employed more extensively in the work of farm leaders and social organizations: respect and gratitude for working comrades, interest and attention to work on the part of leaders and a positive evaluation by them of the labor successes of workers. Towards this end, the honoring of leading workers and competition winners must be carried out during large meetings of the collectives and in a festive atmosphere. For ceremonial meetings devoted to issuing awards to winners of the competition, invitations should be extended to labor veterans, to the family members of those scheduled to receive awards and also to the young generation -- students attending professional technical schools, young pioneers and other school children.

The mass introduction of the collective contract is raising the collective responsibility of brigades, farms and teams for the final results of their production-financial activities. This is imposing new requirements with regard to organizing the competition, the practice of summarizing results and also upon the conditions for issuing material and moral incentives for labor.

The competition form should be aimed at orienting each primary labor collective towards increasing the production of goods, improving their quality and lowering costs. For it is these indicators which in the final analysis will determine the winner and not the work volumes completed or the schedules for the carrying out of particular agricultural campaigns. In accordance with the new form for production organization, which makes it possible to raise collective responsibility, the system for issuing incentives based upon the competition results will have to be changed. Incentives should be ensured for the leading collectives on the whole and the primary labor subunits should be authorized to determine the best collectives based upon the information at hand.

We can cite many examples of successful work by brigades, teams and farms, work which received high social recognition. The workers attached to such collectives are receiving incentives in the form of considerable additional payments and bonuses. However, quite often it is not a collective of workers but rather only

the leader of a subunit that is singled out for an award based upon the results of a socialist competition in a rayon, oblast, republic or throughout the country as a whole. This is not always accepted in a positive manner in a collective, a fact which should be borne in mind by those who organize a socialist competition. The moral aspects of issuing incentives must be taken into account more completely.

In our opinion, the recommended conditions make it possible to intensify the role played by material and moral incentives in raising production efficiency, introducing the achievements of scientific-technical progress into operations and increasing the importance of a labor collective in solving the daily economic tasks. They must promote more fully the realization of the principle of wages according to labor and accelerate the process of intensification of social production.

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OFFICIALS REVIEW TRANSPORT SERVICE DEFICIENCIES

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[Article by Yu. Grachev: "Freight Cars On Sidings: Report From the USSR Gosagroprom Central Dispatcher's Office"]

[Text] The agenda for the regular selector roll-call for the leaders of mechanization services of agroindustrial committees for 48 oblasts and republics was formulated very clearly: what explains the above-normal idle time of railroad freight cars at those bases to which vegetables and other agricultural products are being delivered? What is preventing them from being unloaded rapidly and why is it that large numbers of rolling stock loaded with highly perishable freight are accumulating on the spur tracks?

"Each year, for Gosagroprom as a whole, more than 3,000 freight cars containing potatoes, grapes, watermelons, meat and other products remain unloaded at the receiving points," stated the chief of the Department of Mechanization and Electrification V.I. Chernoiivanov, who started the selector roll-call, "At stations of the Moscow Railroad Terminal alone, for example, 1,600 freight cars were idle on 23 and 24 September. They succeeded in unloading only 340. And the flow of freight is increasing in like manner as the rates for harvesting the crops are intensifying."

Yes, the autumn field operations this year at kolkhozes and sovkhoses, coincidental with the mass procurements of vegetables, potatoes, beets, corn and melon crops, have created a great amount of tension at the receiving bases of the agroindustrial committees. Many shortcomings have surfaced in the system for the transporting, loading and unloading of products. Owing to an absence of mechanized operations at the storehouses, insufficient containers and a shortage of workers, a majority of the bases were simply not prepared for receiving the crops.

The deputy chief of the Main Administration for Mechanization of Gosagroprom for the Ukraine V.S. Kharchenko picked up the microphone.

"The chief reason for the idle time of freight cars during unloading operations is the small work area. Allow me to explain. In Kiev, for example, 60 to 100 freight cars containing agricultural freight arrive every 24 hours. But at any one time we are able to unload only 14 freight cars. There is not enough space available. Thus they accumulate on the sidings. Moreover, the freight comes to us not in bags, nets or containers, but as a rule in bulk form. It must be unloaded manually."

The unloading of freight cars is similarly complicated at bases in Baku, Alma-Ata, Tashkent, Leningrad, Gorkiy, Rostov-na-Donu, Orenburg, Saransk, Krasnodar and many other cities. This is understandable -- indeed the field and farm products are shipped to all corners of the country. And they are shipped in large quantities.

"We need small train sections consisting of not more than five freight cars" stated the head of the Engineering and Technical Service of Gosagroprom for Azerbaijan T.G. Askerov, as he joined in the discussion.

"We will carry out your request," came the reply from Moscow by the deputy chief of the Main Administration for Movement of the USSR Ministry of Railways N.I. Grigorenko.

The selector communications discussion took us to Gorkiy.

"We are paying huge fines to the railroad for freight car idle time," stated the deputy chairman of the oblagroprom V.N. Galyanov. "The unloading of fruit and vegetables is being carried out very poorly at the receiving bases owing to an absence of mechanization. Unfortunately, concern is only now being shown for solving this problem. In response to our request, the designers at the Gorkiy Motor Vehicle Plant are creating mechanisms for Vegetable Base No. 1. In the near future, we will place in operation three car dumpers and this will make it possible to accelerate unloading operations."

"Gorkiy, Rostov-na-Donu is calling you," a voice is heard over the loudspeaker -- the deputy chairman of the oblagroprom A.A. Golovtsev has the microphone: "The unloading of freight cars in Rostov is being held up to a considerable degree by your oblpotrebsoyuz /oblast union of consumer cooperatives/. The potatoes being delivered to us must be sorted out completely by hand and they contain large amounts of rot and dirt. The waste materials exceed 20 percent. Is this good business? Meanwhile, good quality products are being received from Orel, Ryazan and Tula oblasts and they are being unloaded without delay."

Certainly, the product quality and the idle time of freight cars waiting to be unloaded are mutually related factors. But here a great deal depends upon the organization of labor at the bases themselves. Indeed the rates for loading and unloading operations are declining in all areas, for example on Saturdays and Sundays. The situation is even worse in the case of nighttime loading and unloading operations. As a rule, not more than 25 percent of the freight cars which arrive on a daily basis are processed during this period.

The participants in the radio roll-call wished to hear from the leaders of the Leningrad or Moscow municipal agroproms and to learn why they are making such poor use of these reserves. Indeed, more freight cars are standing on sidings waiting to be unloaded in these two cities than anywhere else. Unfortunately however, not one of the officials of the agroproms of the capital or Leningrad joined in the radio roll-call, despite the fact that they were invited to do so ahead of time.

AGRO-ECONOMICS AND ORGANIZATION

SIZENKO ON GOSAGROPROM TASKS, GOALS

Moscow AGITATOR in Russian No 18, Sep 86 pp 8-11

[Article by Ye. Sizenko, 1st deputy chairman of USSR Gosagroprom and USSR minister: "Urgent Tasks of Agroprom Workers"]

[Text] The harvest work for the first year of the 12th Five-Year Plan is being carried out at a maximum tempo on fields throughout the country. It has turned out to be difficult work for the agroprom workers. They had to apply a great amount of effort in order to obtain full-weight ears and good yields for their technical, vegetable and forage crops. And their persistent work was repaid one hundredfold.

A good grain harvest was obtained in Krasnodar Kray, where the average yield exceeded 40 quintals per hectare. The country was pleased by the work performed by grain growers in Stavropol Kray, the North Osetian ASSR and in Kursk, Belgorod, Lvov, Ternopol and a number of other oblasts. The fields in the eastern regions of the Russian Federation and in northern Kazakhstan are in fine condition. Large tracts of cereal grain crops are concentrated here and it is from these fields that the country obtains a considerable portion of its commodity grain.

The expertise of the farmers and strict observance of the agricultural techniques have made it possible for many farms to obtain record grain yields. Thus, at the Kolkhoz imeni Ilich in Chemerovetskiy Rayon in Khmel'nitskiy Oblast, an average of more than 75 quintals of grain was obtained and at the Progress Kolkhoz in Grodno Oblast -- 59 quintals. Fine results were achieved by a majority of the farms in the nonchernozem zone of the RSFSR. For example, 53 quintals of grain per hectare were obtained at the Kolkhoz imeni Lenin in Tula.

The harvesting of sugar beets, cotton and other late crops is underway. The sowing of winter crops is being carried out successfully. In short, a considerable amount of work is being carried out on the autumn fields.

On farms throughout the country, preparations for the forthcoming wintering campaign are nearing completion and feed is being accumulated. The livestock breeders are undertaking all possible measures aimed at increasing the milk yields and the weight gains in the livestock. Tense work is being performed by the collectives of agroprom industrial enterprises. The mass processing of products is in progress here.

The first year of the five-year plan will be a decisive one to a large extent for all elements of the agroindustrial complex. The results of this year will reveal how strongly the agroprom workers have accepted the idea of acceleration and the degree to which the economic style and methods are responding to the high requirements being imposed at the present time.

During the 27th CPSU Congress, the task of achieving complete support for the country in the form of food goods and a decisive turning point in the agrarian sector of the economy was included among the more important tasks. The large-scale plans are aimed at successfully carrying out the Food Program.

As is known, the foundation for the modern agrarian policies of the CPSU was established during the May (1982) Plenum of the party's central committee, at which time a great amount of attention was devoted to improving control over agriculture and other branches of the APK /agroindustrial complex/ and also to achieving further improvements in the economic mechanism. The measures adopted had a positive effect on the results. During the 1983-1985 period, the average annual volume of gross agricultural output amounted to 209 billion rubles, or more than the preceding period of the five-year plan by 18 billion rubles. Increases took place in the purchases of grain, sugar beets, the seed of oil-bearing crops and vegetables. Improvements were realized in the matter of supplying the farms with feed and the productivity of livestock husbandry operations increased.

However, success was not realized in solving all of the problems. During the years of the 11th Five-Year Plan, the planned increase in agricultural output was not realized for a number of items and the problem concerned with eliminating disproportions in the processing industry is being solved only slowly.

In conformity with the broad program of measures of an organizational-economic nature, a great amount of work is being carried out the purpose of which is to develop and strengthen agroindustrial integration and to combine the efforts of all APK branches in the interest of achieving high final results. The principal step taken in this direction has been the creation, both in the center and in the various areas, of unified organs for controlling the agroindustrial complex, for the purpose of ensuring that planning, financing and administration for the complex are carried out as a single entity at all levels.

The principal goal of the reorganization is to create favorable organizational and economic conditions for kolkhoz and sovkhos operations by presenting them with greater independence, raise substantially the return from the production potential, achieve thorough integration of the kolkhozes and sovkhos with the processing industry and science with production, eliminate departmental isolation and, on this basis, combine the efforts of all APK branches in achieving high final results. A requirement exists for achieving flexible and efficient management for all APK elements and for bringing about a radical change in the economic relationships of kolkhozes and sovkhos with the processing and service enterprises.

The organizational reorganization of administration is reinforced by the new economic mechanism for management. Its essence consists of the extensive

introduction of progressive methods for planning and economic stimulation based upon norms, an expansion of the rights of kolkhozes, sovkhozes and other APK enterprises and organizations in solving economic problems, greater interest and responsibility by labor collectives and all administrative elements for production intensification and active utilization of the achievements of scientific-technical progress.

Such an approach is opening up extremely favorable conditions for highly efficient production management, a dynamic increase in food resources and for displaying greater initiative and enterprise. For example, grain purchase plans which are stable for the years of the five-year plan have been established. For the purpose of stimulation and increasing grain procurements for the state resources, the kolkhozes and sovkhozes during the current five-year plan will be paid bonuses for adding on to the purchase prices in the amount of 100 percent for grain sold over and above the average annual level for the 11th Five-Year Plan and upon the condition that the plans are fulfilled.

For the very first time, the practice has been introduced of allowing those farms which successfully coped with their plans for delivering grain to the state to procure, in the form of counter sales, motor vehicles, tractors and certain types of equipment. This measure, in combination with a system of economically sound prices and a firm plan, is giving new meaning to the economic mechanism and it is bringing about a noticeable acceleration in the further development of agricultural production. It is sufficient to state that many kolkhozes and sovkhozes have increased their grain sales volumes substantially as a result of economic stimulation.

It is no secret that many of our leaders have worked for a long period of time under conditions involving a low degree of exactingness with regard to profitable production management -- quite often involving parasitical tendencies and material irresponsibility on the part of certain personnel. As a result, a profitability in excess of 25 percent has been achieved by only one third of the kolkhozes and one fourth of the sovkhozes and more than 40 percent -- by only one tenth of these farms. We still have many unprofitable farms. Some industrial enterprises are experiencing financial difficulties. Certainly, this must not continue. This is why the plans call not only for a halt in the development of such a negative trend as growth in production costs but also a reduction in these costs: in agriculture -- by 8 percent and in the processing industry -- by more than 5 percent. The new economic mechanism is a lever which can aid the kolkhozes, sovkhozes and industrial enterprises in becoming materially interested in producing more output, obtaining more income and carrying out their work based upon self-payment and self-financing principles.

The plans call for the majority of subunits to be converted over to the collective contract and complete cost accounting within the next two years. A check system for controlling expenditures of material and financial resources will be introduced into operations in all areas.

Experience has already been accumulated in this area. For example, at the Nazarovskiy Sovkhoz in Krasnoyarsk Kray, each kopeck is being accounted for in a very strict manner and from year to year, with stable growth taking place in

the production of field and farm products, reductions are taking place in the production costs. The collective of the Put K Kommunizmu Kolkhoz in Stavropol Kray has achieved high results. Here, during each of the last three five-year plans, the volume of marketable products has increased by a factor of almost 1.5. During this 15 year period, the output per kolkhoz member tripled and now amounts to 10,000 rubles.

This year the union republics, autonomous republics, krays and oblasts are being supplied with plans for the delivery of agricultural products to the all-union and republic funds which have been approved only for the years of the five-year plan. For the purpose of raising the interest of the local organs of administration in increasing the production of food products and improving the supply of such products for the population, the resources of meat, milk and other products remaining after fulfillment of the plans for delivering such products to the centralized funds will be placed at the disposal of the above organs.

A program for raising the level of self-support in the form of food goods in various regions of the country, mainly through the comprehensive use of internal potential, is being developed and placed in operation in a persistent manner. The local organs now bear complete responsibility for ensuring that the population is reliably supplied with food goods as a result of intensified production.

In conformity with the new mechanism for management, the kolkhozes and sovkhoses are authorized to sell through cooperative trade, at kolkhoz markets, all of their above-plan products and a considerable portion of their planned vegetable and potato volumes. And many farms are skilfully taking advantage of this opportunity. This feature is valued highly at kolkhoz markets in large industrial centers throughout the country and the farms are none the worse for it.

Understandably, the reorganization of administration and the economic mechanism for management requires basic changes in the psychology of the personnel. As noted during the 27th CPSU Congress, this is a most important condition for accelerating our growth. The psychological reorganization must touch upon the administrative element of the APK, the specialists and all those who work directly out on the fields and farms and also at processing and other enterprises.

A sense of ownership must be revived in the farmers. Certainly, this is no easy task. Indeed, a radical turning point must be reached in personnel thinking and in the approach they employ for solving urgent problems and sluggishness and indifference must be overcome in a decisive manner. A great deal of work is being carried out today aimed at instilling in the personnel such qualities as initiative, enterprise and a high sense of responsibility for assigned tasks. A greater role is now being played by the rural party aktiv and the propagandists.

At the same time, sluggishness and indecisiveness are being displayed at times. The RAPO's /rayon agroindustrial associations/ appear to be in no hurry to reorganize in the spirit of acceleration. For example, during a meeting of the

Board of USSR Gosagroprom, a review was undertaken of the work being performed by the Sovetskii RAPO in Kursk Oblast. And what was the result? Proper attention is not being given here to converting over to the new principles for management or to the norm method for planning. The reorganization of the administrative structure was not carried out in a timely manner and some enterprises were not made subordinate to the RAPO. Substantial changes did not take place in the economic relationships of the agricultural and processing enterprises. In short, the operational style and methods differed very little from the previous ones. And the results were the same.

The agroindustrial complex requires personnel who are interested, who work in an active manner and who display a high degree of professional expertise accompanied by innovative boldness. The RAPO's are displaying special concern for the development of democratic principles in the administration of kolkhozes, sovkhozes and other enterprises and organizations of the agroindustrial complex.

The party exhorts us to develop initiative so that each individual can function in an energetic manner, make full use of all available rights and be not afraid to accept responsibility when required for blazing the path for new developments. However, such reorganization is still taking place in a slow manner. Shortcomings are still being noted in the selection, placement and training of leading personnel and their turnover rate is high.

Work has been accelerated in this regard in connection with creating a complete personnel training program, primarily for the mass professions: machine operators, livestock breeders, operators, foremen and workers in the processing branches.

During the current five-year plan, workers attached to the country's agroindustrial complex must undertake to achieve high goals. The new five-year plan differs considerably from all previous ones. The plans call for the rates of growth in gross agricultural output and marketable output by the processing branches of industry to be more than doubled. The task has been assigned of achieving a considerable increase in the per capita consumption of meat, milk, vegetables and fruit and qualitative changes in the nutritional structure for the Soviet people.

The agroprom workers are devoting priority concern to their grain fields. The logistical resources required are being concentrated here. In order to obtain 250-255 million tons of grain in 1990, the yield will have to be raised by more than 6 quintals. Importance is also being attached to raising the stability of the grain economy, delivering the planned volumes of grain, pulse and groat crops to the state granaries and improving the quality of these crops.

The key to solving these tasks consists of actively mastering the intensive technology on the grain fields. Past experience has shown it to be highly effective. Sixteen million additional tons of grain were obtained from the intensive fields alone. This year the grain areas on which intensive technologies are to be employed have been increased by almost twofold and amount to 31 million hectares. A worthy yield is at hand. At the same time, mistakes have been tolerated in some areas.

Over the next few years, grain crops will be grown using the intensive technology on areas in excess of 50 million hectares. Increased use will also be made of the intensive technology on the plantations of technical, forage and a number of other crops.

During the 12th Five-Year Plan, the agroprom workers plan to create a reliable feed base. And considerable emphasis will be placed upon expanding the procurement volumes for coarse and succulent feeds and increasing the production of protein by a factor of 1.3. Towards this end, the plans call for the pulse crop yield to be increased to 18 million tons by 1990, an increase by a factor of 2.3, for soybean production to be increased and also for the sowings of perennial leguminous grasses to be expanded. Special attention will be given to raising the yields of sunflower seed, thus making it possible to have more oilcake and oil-seed meal. A considerable volume of work must be carried out on the natural feed lands.

But the work of obtaining feed represents only one half of the task. It must be properly preserved and its quality retained. This is why a large program is being developed for the construction of silage and haylage facilities and good quality hay storehouses at the kolkhozes and sovkhoses. The principle being followed here: a reliable roof for each kilogram of forage.

The livestock husbandry workers are confronted by important tasks. They must double the rates of growth in meat production and obtain up to 21 million tons in dressed weight in 1990. In order to achieve this goal, the average live weight of cattle sold to the state must be raised to a minimum of 400 kilograms. Is this a realistic task? Beyond any doubt. Many kolkhozes and sovkhoses are already realizing such results. The farms in Lithuania, for example, have achieved an average delivery weight per head of cattle of up to 435 kilograms. Use must be made of the experience of leading workers and the established tasks must be fulfilled in an energetic manner. Based upon an acceleration in scientific-technical progress and the use of intensive technologies, the beef production volume must be raised to 52 percent, pork -- 85 and poultry -- to 57 percent.

Considerable improvements are required in dairy cattle husbandry. By the end of the five-year plan, the average milk yield per cow must be not less than 2,750 kilograms compared to only 2,458 kilograms in 1985.

Workers attached to the processing branches of the agroindustrial complex will carry out very important tasks during the 12th Five-Year Plan. The plans call for the production of meat products to be increased by 24 percent, sugar by a factor of 1.3 and vegetable oil by a factor of 1.6. The carrying out of the plans as outlined will make it possible, by 1990, to maintain the per capita consumption of food products at the level called for in the Food Program. For the successful solving of this task, the logistical base for the processing of raw materials must be developed at accelerated rates and the conversion over to a waste-free technology must be carried out in a more active manner. In order to illustrate the importance of this problem, allow me to cite an example. In recent years, many complications have developed within the sugar industry. In addition to reductions taking place in the gross yields of beets, the yield of product per ton of raw material is declining at many of the branch's plants.

Over the past 2 years, 9 tons of beets on the average were required per ton of sugar. Meanwhile, the experience of many leading enterprises reveals that beet consumption can be reduced by 1.5-2 tons.

One of the more effective means for augmenting the country's food fund is that of reducing the losses in agricultural products during harvesting, transporting, storage and processing operations. Here there are tremendous reserves. The increase in consumption resources may amount to 20 and for some types of products even to 30 percent. Moreover, the expenditures for eliminating the losses are as a rule less by a factor of 2-3 than that required for organizing the additional production of the same volume of products. The construction of sorting-receiving and delivery points with preliminary cooling is being carried out for the purpose of raising the quality of the fruit, vegetables and potatoes being procured at specialized kolkhozes and sovkhozes. The plans call for the production of storehouse units made out of light metal structures for potatoes, vegetables and fruit for a capability of 6 million tons.

Notable improvements will take place at enterprises of the meat and dairy industry. Product losses must be reduced by 25-30 percent and technological equipment for ensuring the thorough and complete processing of livestock husbandry raw materials must be introduced into operations on an extensive scale. In particular, a special program has been developed for the modernization and technical re-equipping of refrigeration equipment for meat products and for the construction of new equipment. On the whole, the amount of capital investments to be employed during the current five-year period for developing the meat industry will be greater by a factor of 1.6 than the amount employed in the past.

The plans call for considerable volumes of work to be carried out in connection with reducing product losses at enterprises of the food, canning and other branches of the agroindustrial complex.

Large funds are being allocated for acquiring new equipment and machines. Emphasis is being placed upon eliminating existing disproportions in the processing industry and having the capabilities conform more to the raw material sources. It is sufficient to state that with an overall growth in capital investments of a productive nature in the agroindustrial complex (excluding capital-producing branches) of 6.3 percent, investments in the processing branches of the APK are increasing by 52 percent, including by 63 percent in the food industry and 79 percent in the meat and dairy industry. Roughly one half of the funds allocated will be used for the modernization and technical re-equipping of existing enterprises.

All of this will serve to promote further production intensification. The plans call for high rates of growth in labor productivity. At kolkhozes and sovkhozes, it will amount to 21.4 percent and at processing enterprises -- 22 percent.

Deserving of special mention are the social trends for the five-year plan. It can be stated that the 12th Five-Year Plan is a five-year plan for actively solving the social problems of the rural areas. Capital investments for the construction of installations of a non-productive nature are being increased by 42 percent. Just as in the past, priority importance will be attached to the

construction of housing, childrens' pre-school institutions and installations for providing medical and cultural-domestic services for rural workers.

The results of the first year of work by agroprom will be summarized this autumn. The increasing efforts of its workers are making it possible to transform the country's agroindustrial complex into a highly efficient sector of our economy and also to solve successfully the tasks advanced during the 27th CPSU Congress.

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LIVESTOCK AND FEED PROCUREMENT

BELORUSSIAN FEED GRASS HARVESTING REVIEWED

First Cutting Results

Minsk SELSKAYA GAZETA in Russian 19 Jul 86 p 1

[Article by N. Glavatskiy, chief of the Administration of Feed Production of BSSR Gosagroprom: "An Important Stage Is Ahead"]

[Excerpts] The harvesting of grass of the first cutting has been completed. Most kolkhozes and sovkhoses have been able to mobilize human and technical resources, have manifested flexible tactics in labor organization and in a highly productive utilization of equipment, and have observed technological discipline. Throughout the republic haymaking has been carried out during shorter periods than last year, almost twice as much hay has been procured by pressing and active ventilation methods, and the quality of hay and haylage is much higher.

At the same time, the envisaged volume of feed has not been obtained from the first cutting. The great diversity of fodder provision in a number of rayons, kolkhozes, and sovkhoses is especially disturbing. Farms in Tolochinskiy, Slutskiy, Luninetskiy, Orshanskiy, Pukhovichiyskiy, Bykhovskiy, and Shklovskiy rayons have from 6.7 to 8 quintals of feed units per standard head of livestock, whereas Chashnikskiy, Dyatlovskiy, Iyevskiy, and Shchuchinskiy rayons, less than 4 quintals. That is why concern for the replenishment of feed stocks in lagging rayons and farms should become foremost.

Throughout the republic 60 percent of the planned hay has been procured from the first cutting. Vitebsk Oblast is ahead--70 percent--which corresponds to the envisaged level. Hay procurement has not been carried out satisfactorily on farms in Maloritskiy, Ushachskiy, Klimovichskiy, and Bobruyskiy rayons. Resources have not been utilized here and only one-half of the planned volume of hay is available.

Leading the republic in haylage procurement are the Mogilev and Brest oblasts.

A great deal of lethargy has been manifested in the technology of haylage procurement, which nothing, except irresponsibility on the part of some farm managers and specialists, can explain. For example, on the Drichinskiy

Sovkhoz in Pukhovichskiy Rayon, on the Khatskevich Sovkhoz in Chausskiy Rayon, on the Pravda Kolkhoz in Mstislavskiy Rayon, on the Komintern Kolkhoz in Orshanskiy Rayon, and on the Bolshevik Kolkhoz in Cherkovskiy Rayon, under good weather conditions grass mass has been placed in trenches without being sun-dried as silage, but according to reports that it is considered haylage.

The loading of haylage towers is not carried out satisfactorily in most rayons. For the time being only 400 capacities have been filled, which is 1.5 times less than scheduled. Towers are utilized in an especially bad manner in Gantsevichskiy, Stolinskiy, Sennenskiy, Dyatlovskiy, and Lidskiy rayons. The faulty practice of underestimating these storage facilities, which make it possible to save 20 to 25 percent of the feed, exists here. The demand that all towers be filled without fail is ignored.

It is difficult to explain the lag behind the schedule of procurement and sale of grass meal to the state in many of the republic's rayons. Such a necessary component for mixed feed production should be delivered to enterprises in a planned volume and on schedule. In many rayons, primarily in Mogilev, Vitebsk, and Brest oblasts, it is urgently necessary to rectify the matter of production and sale of grass meal to the state by using grass of second cuttings and annual grass-legume mixtures. It is also important to improve its quality.

This year, on the whole, the quality of procured fodder is higher than last year. Nevertheless, despite the fact that weather conditions have now contributed to a successful course of haymaking, there have been many cases of feed spoilage. Violations of technology and a deterioration in the quality of fodder have occurred on farms in Postavskiy, Orshanskiy, Berezovskiy, Vitebskiy, Kostyukovichskiy, and other rayons. To this day 40 percent of the feed has not been checked on farms in Vitebsk Oblast and 30 percent, in Grodno Oblast. The experience of Slutskiy and some other rayons in Minsk Oblast, where workers at feed laboratories have become direct and influential participants in the feed procurement campaign, should be studied.

The feed deficiency formed as a result of the first cutting should be compensated for by two basic sources, that is, feed procurement on nonagricultural land and an additional sowing of fodder crops.

Nonagricultural land is an important source of feed replenishment. However, in Mogilev Oblast more than one-half of the assignment for the procurement of the green mass from these areas has already been fulfilled. In Brest, Vitebsk, and Grodno oblasts work is carried out at low rates. Individual enterprises acting as patrons in cities disrupt the assignments given them concerning feed procurement on unsuitable land. This applies primarily to enterprises in Pinsk, Kobrin, Orsha, Rogachev, Molodechno, and Osipovichy.

Considerable work on an additional sowing of fodder crops has also been done. A total of 120,000 hectares have been sown in Gomel Oblast alone. However, this work should be continued, especially in Minsk and Mogilev oblasts.

The second stage of work in feed production has arrived. It is now very important not to diminish the effort in haymaking and not to lose time. The

task is to procure no less than 11.5 to 12 quintals of feed units per standard head of livestock during the remaining period.

INFORMATION

On Grass Harvesting and Procurement and Quality of Feed on Kolkhozes and State Farms as of 15 July 1986

Oblasts	Procured in % of assignment of first cutting			Procured feed units in % of assignment of first cutting	Procured feed per standard head (without hogs and poultry), quintals of feed units			Procured first-category feed (in % of checked feed)			Procured green mass from non-agricultural land in % of assignment
	hay- grass				1986			hay- grass			
	hay	lage	meal		1985	plan	fact	hay	lage	meal	
Brest	96	92	107	91	5.45	6.64	6.03	81	83	31	24
Vitebsk	102	71	84	84	5.93	7.38	6.19	85	83	45	14
Gomel	79	59	78	67	6.46	7.41	4.97	89	84	42	23
Grodno	97	66	73	78	4.93	6.31	4.95	88	75	69	26
Minsk	81	76	88	77	6.52	7.37	5.64	85	84	44	43
Mogilev	88	93	71	83	6.47	7.47	6.23	80	77	47	54

It is necessary to most actively join in the harvesting of grass of second cuttings and not to postpone this work for a single day. On many areas the after-grass is undersized, but the phases of development of plants outstrip their growth. Clovers are already beginning to blossom and cereals are forming panicles. We must avoid their overripeness, remembering that the third cutting can also be obtained.

Postharvest and stubble areas are important reserves for the replenishment of feed stocks. First of all, on every farm it is necessary to determine which of them, after the harvesting of annual grass, should be allocated for winter crops and which, for secondary crops. It is also necessary to specifically determine which grain crop areas will be harvested primarily and what should be sown on them after the harvest.

From the first days of grain crop harvesting special concern should be manifested for straw. From plots, where grass has been sown under and has grown over spring grain crops, it is important to harvest part of the straw, simultaneously crushing it, and to utilize it for silaging. It is necessary to widely use the silaging of straw with annual grass, the corn mass, tops of vegetable root crops, and vegetable waste.

Great hopes are placed on corn. It is necessary to see to it immediately that the entire material and technical base for the silaging of this crop be prepared. We must remember that the application of chemical preservatives makes it possible to obtain corn silage containing up to 8 percent of sugar, whereas without their use this indicator makes up less than 1 percent. At the same time, losses of feed units are reduced by one-half as a minimum. Meanwhile, in oblasts, especially in Brest and Minsk oblasts, proper measures to provide farms with devices for the application of preservatives have not been taken. Their manual application should be eliminated from practice.

Problem Areas Indicated

Minsk SELSKAYA GAZETA in Russian 12 Aug 86 p 1

[Article: "Second Cutting Must Not Be Late"]

[Text] Grain crops are being harvested in the republic's fields. Rural workers have a lot of concerns. After all, flax pulling, fall plowing, and soil preparation for winter sowing are being carried out at the same time. Straw harvesting and the sowing of postharvest and stubble crops must also be hastened. As before, work on feed accumulation must hold a special place among these concerns.

It cannot be considered normal that on a significant number of kolkhozes and sovkhozes feed provision still remains low. On the average, there are less than 6 quintals of feed units per standard head on farms in Beshenkovichskiy, Glubokskiy, Lioznenskiy, Miorskiy, Chashnikskiy, Sharkovshchinskiy, Mozyrskiy, Petrikovskiy, Voronovskiy, Ivyevskiy, Lidskiy, Oshmyanskiy, Borisovskiy, Logoyskiy, and Volozhinskiy rayons. The fact that on some kolkhozes and sovkhozes this indicator is even lower--only about 4 quintals of feed units--makes it all the more alarming. There are 31 such farms in Grodno Oblast, 21 in Vitebsk Oblast, 13 in Gomel Oblast, 9 in Brest Oblast, 8 in Mogilev Oblast, and 5 in Minsk Oblast. The rest must be placed under strict control.

During the week under review hay stocks in the republic have been replenished with 90,000 tons, of haylage, with 148,000 tons, of ready silage, with 250,000 tons, and of dehydrated feed, with 15,000 tons. To be sure, such rates cannot be satisfactory. They are low, not because there are no raw materials, but because here and there attention to this most important work has slackened. Virtually all kolkhozes and sovkhozes now have raw material resources--on arable land, on hayfields, and on nonagricultural land. For example, during the week under review 170,000 tons of the green mass from unsuitable land have been stored, including 52,000 tons in Gomel Oblast, 42,000 tons in Vitebsk Oblast, and 35,000 tons in Brest Oblast. However, not everyone has handled matters in this way. During this time farms in Grodno Oblast have procured only 8,000 tons of the green mass and in Minsk Oblast, 15,000 tons. The set assignment for the procurement of feed from unsuitable land in Molodechnenskiy Rayon from the beginning of the season, in general, has been fulfilled 23 percent, in Chervenskiy Rayon, 26 percent, in Starodorozhskiy Rayon, 31 percent, in Gantsevichskiy Rayon, 34 percent, in Polotskiy Rayon, 18 percent, in Orshanskiy Rayon, 19 percent, and in Lioznenskiy Rayon, 27 percent.

Now the task is not to be late with the second cutting. It is necessary to mow the after-grass at the best phases and to obtain high-quality feed from it.

However, some farm managers, as with the first cutting, play a waiting game and build their hopes on a large increase in the grass mass. Yet the best harvesting time is passing. Is it permissible that, for example, for the time being less than 10 percent of the planned areas have been mowed on farms in Kirovskiy, Mstislavskiy, Khotimskiy, Borisovskiy, Volozhinskiy, Myadelskiy, Uzdenskiy, and most rayons in Vitebsk Oblast? It is urgently necessary to rectify the matter and to organize the harvesting of the aftermath for hay and grass meal. The fact that the procurement of precisely this feed in individual rayons is under the threat of a disruption also calls for an acceleration of rates. The hay stored in 7 rayons in Brest Oblast, 2 rayons in Vitebsk Oblast, 13 rayons in Gomel Oblast, 5 rayons in Grodno Oblast, 18 rayons in Minsk Oblast, and 8 rayons in Mogilev Oblast comprises less than 70 percent of the annual plan.

This year straw will occupy a significant place in the feed ration. Most farms rush to take advantage of the good weather conditions for its harvesting. However, in Grodno, Mogilev, and Brest oblasts on the third part of the threshed grain crops, straw lies in the field in swaths or ricks. To delay this work until the arrival of bad weather will be an inexcusable mistake.

In all oblasts there has been a marked decrease in the production of grass meal as compared to last year's level. For example, in Iyevskiy Rayon the annual plan has been fulfilled 22 percent. From the beginning of the season not a single ton has been produced on two out of the existing three AVM-1.5-- on the Kolkhoz imeni Kirov and on the Cherneli Sovkhoz. The unit operating on the Kolkhoz imeni 22 Partsyezda has produced a little more than 100 tons of meal, all of which has been included in the second category.

Individual rayon agroindustrial associations hold the position of noninterference with respect to farm managers disrupting planned deliveries of grass meal. Therefore, the annual plan for the sale of meal to the state has been fulfilled only 31 percent in Beshenkovichskiy Rayon, 22 percent in Dokshitskiy Rayon, 20 percent in Dubrovenskii Rayon, 24 percent in Sennenskiy Rayon, 16 percent in Kormyansky Rayon, 15 percent, in Loyevskiy Rayon, 18 percent in Belynichskiy Rayon, 22 percent in Kostyukovichskiy Rayon, and 8 percent in Khotimskiy Rayon.

The position of the bodies of the BSSR Ministry of Grain Products, which do not ensure the transportation of ready grass meal from farms in accordance with the approved schedule, is not understandable here. The conditions for the storage of this feed on farms are not better and a delay in transportation leads to a deterioration in its quality.

As is well known, the difference in the purchase prices of meal between the first and third category is 70 rubles. Many farms have already incurred large losses. For example, Vitebsk Oblast has sold 12,100 tons of meal, including 7,247 tons of third-category meal, to the state, thereby failing to obtain more than 507,000 rubles. For this reason about 312,000 rubles are deficient

on farms in Mogilev Oblast and 381,000 rubles, in Brest Oblast. It is totally intolerable that kolkhozes and sovkhoses in Ivanovskiy Rayon have sold 71 percent of third-category meal, in Beshenkovichskiy Rayon, 73 percent, in Glubokskiy Rayon, 84 percent, in Dokshitskiy Rayon, 81 percent, in Postavskiy Rayon, 84 percent, in Volkovysskiy Rayon, 83 percent, in Korelichskiy and Gorestskiy rayons, 75 percent, in Osipovichskiy Rayon, 92 percent, and in Shklovskiy Rayon, 90 percent.

All this once again confirms that in a number of places feed production problems have been neglected. There can be no justification for the cited improper facts. The irresponsible attitude toward the important task of the day--maximum replenishment of fodder stocks for the winter keeping of livestock--cannot be tolerated. It is time to call all culprits strictly to account for mismanagement and laxity.

INFORMATION

On the Course of Feed Procurement on the Republic's Kolkhozes and State Farms

Indicators	Total in BSSR	Brest Oblast	Vitebsk Oblast	Gomel Oblast	Grodno Oblast	Minsk Oblast	Mogilev Oblast
Harvested grass of second cut- ting in % of assignment	33.6	31.1	19.1	45.8	51.1	22.5	43.3
Total procured hay in % of plan	66.9	70.1	80.2	63.8	72.7	65.3	68.6
Procured hay- lage in % of plan	78.7	91.5	74.7	69.2	62.2	80.0	95.0
Procured grass meal in % of plan	67.6	74.8	54.1	90.9	59.3	68.6	53.9
Procured green mass from non- agricultural land in % of assignment	49.6	57.6	40.1	39.2	39.6	62.7	76.3

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LIVESTOCK FEED PROCUREMENT

KAZAKH FEED PRODUCTION, QUALITY PROBLEMS EXAMINED

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 30 Aug 86 p 2

[Article by V. Voyevod: "If the Balance Is Upset: Increase Production and Improve the Quality of Combined Fodder"]

[Text] I found out what happened at the Iliyskiy Sovkhoz in Alma-Ata Oblast from the conclusions drawn by the veterinary laboratory. In January-February this year, the young stock at the swine breeding combine suddenly began to fall ill and perish. Over 190 young pigs dropped down and over 300 of them had to be slaughtered. The farm lost dozens of tons of meat which could have been obtained by fattening up these animals.

The reason for the illness of the young stock was a gastric poison contained in cotton grist--one of the ingredients of combined fodder.

Right here, in the veterinary laboratory, they also told me about the cause of the death of young poultry at the end of last year at the Gigant Sovkhoz in Enbekshikazakhskiy Rayon. Once more the board of experts pointed to the combined fodder. The salt content in it proved to be greater than that assumed.

The plant's combined fodder often obtains raw material with a heightened bacterial seed content. Therefore, it is recommended that they be granulized, in order to raise the quality of the concentrates. The technology for preparing this type of fodder specifies that it be steam-processed. The high temperature neutralizes the toxins and reduces the level of the bacterial seed content. Only 12 percent, however, in the overall volume of combined fodder production, is allocated to the granules. In the 12th Five-Year Plan their proportion will increase by only 0.7 percent--a most minimal increase, even though it was said in the order of the Ministry of Grain Products of 13 March 1986, "On Radical Improvement in the Quality of Output": "Organize the production of combined fodders in the form of grit for young stock at agricultural livestock raising and poultry farms by raising the usage level of granulating lines."

Isn't this order hanging in mid-air? This is most of all because the combined fodder plants have a constant shortage of energy resources. Even the Karaganda Grain Products Combine, due to a lack...of coal last year did not fulfill the plan for granulated fodder. Its production was shut down for the very same reason in Ush-Tobe in Taldy-Kurgan Oblast and at one of the combined fodder plants in North Kazakhstan Oblast.

The quality of combined fodders is a volume and weight concept when we are speaking of organizing the fattening up of livestock and poultry on an industrial basis. Here, even a negligible deviation from the scientifically worked-out formulas reduces their effectiveness and leads to a loss of weight gain and various livestock and poultry diseases. These deviations are quite frequent, however, even in premixes, which do not always correspond to the GOST [All-Union State Standard] requirements for trace element content. I will cite just the most recent cases. The commission of experts of the Alma-Ata Zonal Product Laboratory stated on 18 March 1986 that in a sample analyzed, the amounts of iron, manganese and copper introduced were, respectively, understated by 12, 46 and 33 percent. Another commission of experts established the fact that the amount of copper was understated by 17.5 percent. In a third incidence there were 9 kilograms of iron per ton when the norm was 6 kilograms. For such a deviation from the established norms, the Kapchagay Grain Product Combine should have demanded punitive recompense from the enterprise supplying the premix. Did the Kapchagay Combine proceed to do this? This is not just a casual question. Deviations from the norm such as these have happened, in the supply of premixes, even earlier, as, for example, to the Chemolgan Grain Products Combine, but no measures were taken. Quite a strange situation arose at the same time. The receiver seemed to be wary, as if nothing would come out of it if he applied for punitive recompense. Suddenly, though, the suppliers became unreliable and provided fewer products than required. Even though this matter is a public one, a state one!

V.N. Startsev, head of the Alma-Ata Zonal Product Laboratory, even expressed this wish--just set up contacts between two laboratories, when the matter pertains to exceptional events. All right, it's a sensible suggestion, but after all, these contacts depend first of all on the directors themselves. One would think that even sovkhos directors fully recognize the fact that an improvement in the combined fodder quality can be achieved only when a claim is brought to its logical conclusion--to claiming damages, to compensation for losses....

Of course, it's not always easy for economists to be forced sometimes to reconcile themselves with all and sundry--granted the fodder won't be full-value, but there will be a little more. After all, the worse it is, the more you need of it. The demand for combined fodders is at present being only 35-40 percent satisfied. Their scarcity will grow greater, if one takes into consideration the fact that the standard combined fodders produced in Kazakhstan are short of 105,000 tons of protein a year.

The combined fodder industry itself suffers from a shortage of its main ingredient--vegetable protein. Soya is its most valuable constituent. Last year, however, with a plan for 30,000 tons, only a third of the commitment was fulfilled. No soya at all was given to the combined fodder industry in Dzhambul, Kzyl-Orda and Chimkent oblasts, just exactly the ones to whom the main suppliers of this valuable raw material now look to hopefully.

The state of affairs is no better with respect to the supply of vitaminic meal, which could to a certain extent substitute for the grain now taking the lion's share in the formulation of combined fodders. One needs only to compare a few

figures to see the trouble being created. In 1985 Kokchetay Oblast should have supplied 12,000 tons of grass meal, but sent off a total of 300 tons. Kustanay Oblast delivered 200 tons instead of 16,000 tons. After all, though, both soya and grass meal are liberally supplied by that very combined fodder of which the farms are always in short supply.

"Even the procurements of peas have been sharply cut in the last few years," grieves V.N. Feofanov, administrative chief of the Combined Fodder Industry of the Ministry of Grain Products. He recalls the year 1972, when the sector's enterprises received 84,000 tons of this high-protein grain. Ten years later they procured a total of only 3400 tons.

The shortage of groats, meat-and-bone and fish meal and nutrient yeast has become a deep-rooted disease. After all, though, possibilities of curing it do exist. In this connection one should like to recall the fact that over 10 years ago, the Kazakh branch of the VNIИ [All-Union Scientific Research Institute] of the combined fodder industry developed an industrial process for obtaining a protein-fat concentrate (BZhK) from meat industry wastes. Through the research of scientists M.I. Goryayev and R.G. Mayer, it was established that putting it into a combined fodder formula will make it possible to reduce the consumption per kilogram of weight gain of broilers by 0.31 kilograms and at the same time increase the weight gain by 7.5 percent. It follows that using BZhK makes it possible to obtain, merely by virtue of its fat fraction, per 1000 broilers, an additional 120 kilograms of weight gain and to save 310 kilograms of combined fodder. In addition, obtaining BZhK in powdered form makes a major change in principle in the technology of putting fat into combined fodder, and improves its quality.

In May 1976 the former Ministry of the Meat and Dairy Industry issued an order which established that the Semipalatinsk Meat Canning Combine for the Production of Dry Protein-Fat Concentrate and the Kazgipromyasomolprom Institute be entrusted with developing, the same year, the substantiation for creating capacities to produce BZhK.

Ten years have passed since then. Just what has been done? Well, practically nothing. The republic, just as before, has a single solitary shop at the Semipalatinsk Combine, but even it isn't operating at full capacity. The Kazgipromyasomolprom Institute still cannot decide which dryer to use at the newly designed BZhK production shop.

"Raise the quality of combined fodders and reduce the relative proportion of grain in them through using full-value additives"--this task was set for the workers of the combined fodder industry in the Basic Directions for USSR Economic and Social Development in the next 15 years.

Transition to intensive technology in livestock breeding and poultry breeding also requires that an appropriate fodder base be created for it. The Belok program, devised by Gosagroprom in cooperation with scientists, should be put into effect in the republic in the 12th Five-Year Plan. Improving combined fodder production, increasing its output and improving the quality are some of the main components of this program. The combined efforts of all the partners in the agro-industrial complex should be joined in fulfilling it.

LIVESTOCK AND FEED PROCUREMENT

PRAVDA FAULTS REPUBLIC, OBLAST FEED HARVEST LAG

Moscow PRAVDA in Russian 16 Jul 86 p 1

[Editorial: "Contract in the Fodder Field"]

[Text] Until quite recently, the hay harvest stormed through the meadows of Lithuania; but now, hay mowers are seen only in the least productive areas. The farms in the republic require only a few days to complete the first cutting, preparing on the order of 2-3 tons of hay for each cow. In terms of this type of feed storage, the Lithuanian farmers were first in the country to fulfill the plan. Success was guaranteed by the initiative and cooperation of the harvest participants, by the widespread use of a production-line system, by the efficient organization of labor, and, especially, by use of the collective contract. Nine-tenths of the republic's fodder land is allotted to subdivisions working under a single job order.

Non-subsidized, cost-accounting operations are more and more becoming a part of the farmer's life. A decree by the CPSU CC and the USSR Council of Ministers on perfecting in the long term the economic management system of the agro-industrial complex has opened up widespread prospects for a new way of working and has heightened the people's interest in getting the most value with the least expenditure of labor and means of production. Right now, the collective contract principle already has been adopted by almost 90,000 feed-procurement subdivisions and, as a rule, in the areas where they work, land and equipment are better utilized and productivity is higher. For example, on the Khersonskiy Collective Farm imeni Kirov in Belozerskiy rayon, teams working without individual contracts gather about 2,000 or more quintals each of mangel-wurzel per hectare.

The so-called integral processes contract is proving to be especially effective. Under this form of contract, payment for the labor of feed-producers, livestock raisers, managers and economic specialists is directly dependent on the quantity and quality of livestock production realized by the state. On the Staviopol collective farm Kolos, for example, this form of incentive sharply improved the showing of milk production and sheep raising. Farmers became active participants in their development and livestock raisers cared more about the creation of feed reserves.

The modern rural economic system permits general adoption of the collective contract and the principal of cost-accounting operations in feed production. However, despite the obvious advantages of this form of organization and payment for labor, it is still ignored in certain places, or introduced slowly or as a formality. But experience shows that breakdowns in the feed production line occur most frequently precisely in those places where no care is given to progressive new methods, where intensive technology is buried in oblivion, and where the rights of the collective are limited. More than once, party and management organizations of Turkmenia, Karakalpakia, and Dagestan, and the Pskov, and, Nikolaev, oblasts have been criticized for sloth, lack of development of economic managers and specialists in the procurement of feed, and for underestimating the collective forms of labor. But the situation is hardly getting any better. As usual, on the majority of farms, the anti-expenditure system is poorly used, the pace of hay making is slow, and the quality of the feed reserve is not getting any better.

The procurement of fodder is proceeding slowly in Kirgizia and Armenia, and in the Vinnitsa, Tula, and Ryazan oblasts. Excellent grasses are produced in many regions of Siberia, but even there, one finds those with a wait-and-see attitude who forget the lesson of last season when part of the uncollected feed wound up under the snow. We cannot resign ourselves to delaying the field work. Party organizations and agricultural producers are obliged to wage a decisive battle against waste, complacency, and negligence. We cannot tolerate poor utilization of equipment and resources.

Winter has a big appetite. Each blade of grass has to be collected at the proper time and used. Managers and economic specialists must make sure that feed producers work all-out, and make widespread use of the collective contract. The collective and state farms are waiting for more active help with the harvest from the urban population and the collectives of patron enterprises.

The modern farmer has always taken care to get maximum output from the land. And it is no accident that cost-accounting teams and brigades pay a great deal of attention to replanting. The machine operators of the Dawn of Communism Collective Farm in the Ivanovskiy rayon of Brest Oblast knew how to use replanting. After harvesting annual grass crops, they immediately sowed the plots with corn and legume-cereal mixtures and got about 200-250 or more quintals of green fodder per hectare. Nowadays, the country's collective and state farms plan to set aside more than 4 million hectares for post-harvest and post-haying crops. The RSFSR, Belorussia, and the Ukraine are expanding their farm lands, but the Georgian and Azerbaijan farmers still underrate the significance of replanting, and do not use all suitable crops for their land. Here, I think, the Rayon Agro-Industrial Associations [RAPO] must take a more decisive position. One cannot ignore any source for replenishing the farm's feed reserves.

Opportunities to increase production of fodder on reclaimed lands are not fully utilized. In many areas, irrigation technology is not efficiently exploited and the yield of irrigated and dry lands is low. In the Novosibirsk Oblast, for example, fewer than 20 quintals of feed units were received

last year from each hectare of irrigated meadow. And after all, these farmlands are the most valuable and costly, and expenditures for their creation must be recovered through heavy yields. To achieve this together is one of the most important tasks of land reclamation specialists and all workers of the agro-industrial complex.

Strenuous work is going on in the fields and meadows. The collectives which display more gumption and resourcefulness, which have sharper discipline, and which have better procedures will profit. We cannot be content with the fact that on some farms the significance of progressive technology and new methods of labor organization are underrated, the demands of solving the protein problem are minimized, and measures to cut expenditure of concentrates are not taken. Intensification of feed production and perfection of its organizational structure opens a vast expanse for increasing the effectiveness of socialist competition. Party organizations must strive to ensure that the efforts of collectives everywhere are directed toward achieving the highest ultimate result -- getting maximum quantity of good quality feed and livestock products.

Summer passes quickly. Each day, each hour, must be used now with full responsibility and full output to build up feed production so that farms do not find themselves on short rations during the winter. Only through the persistence of the farmers' work and the strenuous efforts of their partners can we complete the great tasks levied on the workers of the agro-industrial complex by the 27th Congress of the CPSU.

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FORESTRY, TIMBER

CELLULOSE-PAPER INDUSTRY PROGRESS, PROBLEMS VIEWED

Half-year Plan Fulfillment

Moscow LESNAYA PROMYSHLENNOST in Russian 15 Jul 86 p 1

[Article: "The Cellulose-Paper Industry: From Jerky to Smooth Operation"]

[Text] For the first time in a number of years, this sector is assured of fulfilling its plan targets. First in line for thanks here should be the boilers, who have provided the sector with semimanufactures in fine fashion. Over 4.3 million tons of cooked cellulose were produced, and almost 1.7 million tons of market cellulose. The cookers' success was not slow in having an effect on the work of the paper-makers and the cardboard makers. These days the paper makers have set themselves the goal of almost three million tons of paper of all kinds and over 17.2 billion m² of newsprint. Nor have the cardboard makers fallen behind their colleagues. They have produced 1.5 million t of products, 934,000 t of which are packaging materials.

The collective of the Syktyvkar LPK [Timber Industry Complex] Association (whose general director is comrade Balin), has been working more confidently than all of them. Workers of the Ust-Ilymsk LPK (comrade Semenov, general director) have achieved stable results. The leaders' group is comprised of the Kotlas, Arkhangelsk, Svetogorsk and Balakhna collectives of the cellulose and paper combines of the Amursk TsKK [Cellulose-Cardboard Combine]. It is gratifying to note that the number of leaders has increased. The collective of the Krasnoyarsk TsBK [Cellulose and Paper Combine] (comrade Melanich, director) has taken its place among their ranks. Year after year this enterprises has been numbered among the laggards. This year the Krasnoyarsk workers have made an abrupt leap forward. Thanks to the rebuilding of their works and the equipment replacements, as well as to the combine collective's striving to come out of the gap of underfulfillment, the enterprise has for the first time fulfilled the plan target for product mix and product deliveries. In six months 2,800 t of above-plan cellulose have been cooked, and an additional 2,700 t of paper have been produced.

During the last half-year period, the sector initiated production of new types of products. For the first time in the country, the Svetogorsk Cellulose and Paper Combine (comrade Bakalov, director) will begin producing offset paper with a sized surface. In a year or two, our domestic industry will meet the demand for this paper in full.

There is no argument that the sector has begun to operate in a much improved fashion. A review of the last half-year period indicates something else as well: the Cellulose and Paper Combine enterprises have substantial reserves of workers, some of whom are doing unsatisfactory work.

Unfortunately, the Solikamsk TsBK (comrade Tatarchuk, director)--which was a former industry leader--has so many reproofs that it has passed all the other enterprises in this sector with reference to this "indicator". In fulfilling their assignments for production of their primary product--newsprint--the Solikamsk workers underproduced commercial cellulose by a thousand t, and backing for light-sensitive paper by 1,500 t. Confusion in the Solikamsk operation has become the norm. Witness a recent fact: because of the flagrant disruption of production procedures in June, there occurred a ChP [extraordinary incident]--six powerful electric motors, used to drive the paper pulpers, burned up. And the other unpleasant "surprises" which have occurred here can wait for their telling until some other time.

The operating indicators of the Astrakhanskiy Cellulose and Cardboard Combine (comrade Gogolev, director) worsened in comparison with the corresponding period for last year. This combine even produced a thousand tons less cellulose for boiling than was produced during six months of last year. As formerly been the case, the cellulose and paper combine collective is not "stretching" the plan target for container board production. In today's conditions this is unacceptable. The Novolyalinskiy Cellulose and Paper Combine (comrade Antipin, director) underproduced paper bags by 4.4 million for the six-month period.

It should be mentioned that non-scheduled work stoppages in the last half year have been considerably reduced compared to the corresponding period for last year. In a number of cases, they amount to two- and three-fold reductions. Nevertheless, because of the stoppages, underproductions of cooked cellulose amounted to 100,000 t, with 50,000 t of paper and 30,000 t of cardboard underproduction. If these losses are translated into rubles, then it turns out that R25 million have been lost as the result of non-scheduled shutdowns.

Today, a great deal of attention is being focussed on questions of economizing in the cellulose and paper industry. In the four and a half years since the publication of the decree "Working Experience of the Kotlas and Solikamsk Cellulose and Paper Combine Collectives in the Economic and Rational Utilization of Raw Timber Materials, and Fuel and Energy and Other Material Resources", a massive effort has been made to disseminate this experience to sectorial enterprises. This, as is well known, this has already been of some benefit. There are as yet no precise figures on savings in resources for the last six months, but preliminary tabulations give the impression that today the results are considerably higher than for the January-June period of last year.

Within the sector, there has been a further increase in the volumes of goods produced to meet popular demand. During a comparable period, over 182 million standard lengths of wallpaper were produced, which is 15.2 percent greater than last year, production of white-paper products increased by 11 percent and the production of sanitation and hygiene paper increased by 41.2 percent. These products are improving in quality as well.

The sector is working, and is moving forward. But there is still much in reserve. The reserves are to be found where each shift, each brigade is at work. They need to be found, and both the worker and the manager need to be put into action.

August Lag

Moscow LESNAYA PROMYSHLENNOST in Russian 18 Sep 86 p 2

[Article published by the USSR Minlesbumprom [USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry] Cellulose and Paper Production Administration and the Wood Chemical Industry, LP [Timber Industry] Paper Department, under the "Paper Industry-86" rubric: "The Lessons of August"]

[Text] The remarkable improvement of affairs in cellulose production at the start of the 12th Five-Year Plan period has had a positive effect on the work being done by the paper industry overall. At present, the primary consumers of semimanufactures--the paper and cardboard industry workers--no longer have to undergo the difficulties they encountered previously. For the last eight months the cookers have come up with additions of five percent over their production of cooked cellulose for the corresponding period of the past year, and the pulp-drying machine operators raised their production of marketable goods by six percent. The collectives of the other production facilities lost no time in taking advantage of this. By September 204,400 more t of paper were produced than during the Jan-Aug period of last year, and this included almost 1,193,000,000 square m of newsprint. Production of printing paper, cardboard, cardboard containers, nutrient yeasts, rosins and other products has markedly increased.

The enterprises producing goods for popular consumption have also worked well during these months. Wallpaper production has increased steadily. Production here for eight months of this year has increased by 10 percent compared to last year, and this is neither a lot nor a little, being 8,218,000 standard lengths. There has been a R10,310,000 increase in white-paper goods over last year, and a six percent increase in paper napkin production has been made available to consumers, as has a 36 percent increase in the production of sanitation and hygiene paper.

However, something else, namely anxiety, has been added to the feeling of satisfaction. The fact is, that a dangerous tendency has been noticed in the sector's operation during the last month. A great number of enterprises have sharply reduced their production rates.

It has already been mentioned in the newspaper that this year the Amur Cellulose and Cardboard Combine is working at a higher level than ever. The combine has coped with their plan for cellulose cooking for eight months, has produced 654 above-plan t of rayon cellulose and has fulfilled the plan for paper. At the same time sulphate cardboard production is operating sporadically, the plan for container board was 1,987 t short of being fulfilled and the lag for 8 months has already reached 3,410 t. There have been, in this sphere of activity, unscheduled shut-downs of Kamyur cookers, pumping facilities and other equipment.

The Selenginsk Cellulose and Cardboard Combine has produced positive results for their totals for 7 months. However, because of the combine's having unsatisfactorily carried out repair work during their scheduled shut-down, the duration of shut-downs of their cardboard machines increased greatly. Their container board debt came to 3,500 t.

In August, the Astrakhanskiy Cellulose and Cardboard Combine failed to fulfill the state plan for cooking cellulose and for container board. Their lag for 8 months for cellulose cooking amounts to 4,700 t and 6,456 t for cardboard. The combine has had major breakdowns of its basic equipment, the technical discipline of its maintenance personnel is poor, and it also suffers from labor turnover and the unsatisfactory state of its production workers' technical instruction.

The work of the Solikamsk Combine in the paper industry deserves high marks. In 8 months, they have produced 12,440 t of above-plan products, which includes 7,129 t of newsprint. At the same time, the combine's cellulose plant is operating very poorly. Since the beginning of the year, the combine has underproduced 1,679 t of market cellulose for the state. The non-delivery of this product puts reprocessing enterprises such as the Mayak Revolyutsii factory, which produces paper for the party's publishers, in a rather complicated position.

Moreover, the combine has failed to fulfill the plan for production of light-sensitive paper backing. The indebtedness for this assortment of products amounts to 2,450 t for 8 months.

There are some serious complaints about the work of the Krasnoyarsk Cellulose and Paper Combine. The cardboard-making machines here have been involved in unscheduled accident-related shut-downs. And one reason is the violation of the rules of equipment operation. The combine does not operate smoothly. In August it underproduced by 370 t of cellulose for cooking and 609 t of container board.

The Sakhalinlesprom [Sakhalia Timber Industry] Production Association did extremely unsatisfactory work in August by not coping with the plan target for cellulose and paper. Two enterprises are at fault here. Three cooking boilers were closed down with official seals because of their accident-prone condition at the Chekhov Cellulose and Paper Plant, and at the Dolinsk Cellulose and Paper Plant, their soda-regenerating boiler is undergoing a major overhaul.

The work done in August by the Tallin Combine and the Kekhra Plant, both of which are affiliated with the ESSR Minlesbumprom [Ministry of the Timber, Pulp and Paper, and Wood Processing Industry] cannot stand up to criticism. The paper-making machines in Tallin were frequently shut down for entire shifts because of accidents and shortcomings on the part of the workforce. The Kekhra Cellulose and Paper Plant held off for nine full days on the start-up of its production equipment following a routine shutdown.

One of the leaders of the "Big Nine", the Bratsk Timber Industry Complex Association works stably by and large, fulfilling and even overfulfilling its plan targets at most of its positions. But the lag in production of cord cellulose here has evidently become chronic. In 8 months, consumers have been undersupplied with this semimanufactured product to the tune of 16,437 t. This has placed USSR Minkhimprom [Ministry of the Chemical Industry] in an uncomfortable position, and has disrupted export deliveries of this cellulose.

How are these failures to be explained? In the first place, supervision of the fulfillment of plans has declined on the part of the leadership of the above-named enterprises. Second, there is the poor engineering support, and in individual cases, the technical ignorance of the engineering and technical personnel, which leads to sharp increases in the number of unscheduled shutdowns. The third and perhaps main cause of these failures is that these enterprises have apparently decided that they have established a product backlog during the early months of the year, and that now they can "take a breather". This is a harmful attitude! Hasn't this brought about a weakening of the triumphal reports of individual managers of the higher organizations regarding the former businesslike mood? Have the awards and bonuses given to them turned their heads?

12659

CSO: 1824/011

FORESTRY, TIMBER

TIMBER INDUSTRY POTENTIAL UNDERUTILIZED

Moscow PRAVDA in Russian 12 Aug 86 p 1

[Editorial: "The Country's Timber Potential"]

[Text] On the threshold of the new five-year plan five of the biggest leaders of the timber industry--Irkutsklesprom, Karellesprom, Kostromalesprom, Sverdlesprom, and Tomlesprom--came out with an initiative: to fulfill by the day of opening of the 27th CPSU Congress no less than one-fourth of the annual plan for the procurement and logging of timber. This initiative was approved by the CPSU Central Committee. All the sector's enterprises and associations took it up. Socialist competition for the attainment of the outlined goals expanded.

The initiative of the five, as it was called in the sector, became the basis for the movement. A total of 57 million cubic meters of timber, or 27 percent of the annual plan, were logged by the day of opening of the congress. The initiators of the competition overfulfilled their obligations. Subcontractors--railroad workers, plants supplying equipment, local party and soviet bodies, and supply workers--also provided considerable assistance.

A decisive restructuring in the organization of labor and management has been the main factor. About 60 percent of the total volume of procurements is now fulfilled by the brigade contract method. The movement for a two- or three-shift operation of equipment following the example of twice Hero of Socialist Labor P. Popov has gained widely in scope. The entire timber conveyor has changed over to continuous 7-day week work. Today work time is counted in minutes. Engineering support has been placed under control and the necessary living conditions have been created.

The good dash made by the timber industry has shown graphically what could be attained owing to purposeful organizational work, a skillful utilization of the human factor, and an increase in the demands on and in the responsibility of managers.

Nevertheless, the sector's potentials are far from exhausted. In particular, this is indicated by the fact that during the first 6 months there has been a considerable lag in the fulfillment of contractual obligations for deliveries of products and for the output of products in the highest quality category.

Such large associations as Vologdalesprom, Permlesprom, Zabaykalles, and Amurlesprom do not operate at full capacity. More than 100 enterprises not only did not cope with obligations, but also did not fulfill the plan. It is clear that they must catch up with the rest. The success of advanced collectives must be consolidated. Mobilizing the sector's workers for the attainment of the highest labor productivity goals, it is necessary to implement with all energy party and government decisions on the restructuring of planning, organization and management of production, and improvement in wages. It is necessary to more energetically establish territorial timber industry complexes, which include work not only on timber procurement, but also forestry and woodworking and pulp and paper enterprises.

The Novgorodles Association can serve as an example of this. Having taken a number of small enterprises under its wing, the association has quickly helped them out of their difficulties. Great hopes are placed on the Syktyvkar Timber Industry Complex. Three large enterprises subordinate to various all-Union associations have joined it. As practice has shown, the establishment of such complexes greatly increases production efficiency.

In the sector there is a great number of other unutilized potentials. It is necessary to decisively change over to thorough timber processing and to actively draw broad-leaved wood into pulp and paper production. Intrashift equipment downtime is still considerable, about 10 percent of the brigades do not fulfill output norms, the repair base is weak, and in a number of places labor discipline leaves much to be desired. The sector experiences a great need for powerful and reliable timber procurement equipment. Machine builders are greatly indebted to the timber industry. Claims against enterprises of the Ministry of Construction, Road and Municipal Machine Building are especially serious. Recently adopted party and government decrees on machine building problems urgently demand drastic changes in work from this sector.

During these intense summer days the timber industry set the task not only of retaining the shock pace undertaken since the beginning of the year, but also of developing it and reaching the set goal ahead of schedule. A successful fulfillment of state plans for the output of diverse products should be combined with preparations for the fall and winter season. This includes the construction of logging roads, housing, and cultural-domestic projects, creation of stocks of raw materials near winter routes, and completion of timber floating. It is also necessary to promptly repair equipment for operation under winter conditions, to train a sufficient number of skilled personnel for work in a two or three-shift regime, and not to reduce the gathered speed of work, which still takes place here and there.

The sector faces big forest regeneration tasks. With due regard for newly established overall enterprises forest sowing and planting volumes will have to be increased almost five-fold during the summer period. The task is not only to preserve forests, but also to increase them, and for every felled tree to plant two.

During the current 5-year period it is important not to increase timber procurement volumes, but, ensuring thorough raw material processing, to attain

an increase in the production of wood boards and technological chips equivalent to the replacement of no less than 100 million cubic meters of commercial timber.

During the 12th Five-Year Plan the timber industry faces serious tasks concerning an improvement of management. A search for a new method of management with a view to fundamentally increasing production efficiency has already begun at the sector's headquarters. Special attention should be paid to an improvement in the structure of management.

A great deal will have to be done to reliably provide the national economy with high-quality pulp and paper products in a given assortment.

In order to ensure an increase of more than 4.3 billion rubles in commodity output through labor productivity alone, it is necessary to reequip at accelerated rates the sector with modern machines and mechanisms, which will make it possible to eliminate heavy manual labor. It is necessary to more rapidly introduce the new economic mechanism and thereby to attain an advance of the sector's economy and to increase production profitability. More attention should be paid to the utilization of timber waste of secondary resources and to the production of effective timber substitutes.

It is necessary to further improve the organizational work of party committees at timber industry establishments and timber processing enterprises. They are urged to more strictly call to account those that for many years have lagged and have not taken practical measures to get out of their difficulties. It is also important to more widely expand socialist competition for a successful fulfillment of annual assignments and to take natural resources not at any price, but economically, thriftily, and efficiently.

11439

CSO: 1824/463

POLICY, ORGANIZATION

GOSAGROPROM DEPUTY ON FOOD INDUSTRY PROGRESS

Moscow EKONOMIKA SELSKOGO KHOZYAYSTVA in Russian No 9, Sep 86 pp 20-26

[Article by N. Kulinich, Deputy Chairman of the USSR State Agroindustrial Committee: "Tasks of the Food Industry"]

[Text] In putting forth a broad program for the social development and improved well-being of the Soviet people, the 27th Party Congress and the CPSU Central Committee's June (1986) Plenum, which was an important stage in implementation of the congress's instructions, gave priority to a task that is to be accomplished in the shortest possible time--the dependable supplying of foodstuffs and agricultural raw materials to the country.

A large and crucial role in the accomplishment of this task belongs to the agroindustrial complex and its constituent part, the food industry.

In the period since the CPSU Central Committee's May (1982) Plenum, which approved the USSR Food Program, which formulates a modern agrarian policy, positive changes have occurred in the development of our country's agroindustrial complex and the improvement of its efficiency. The growth of agricultural production has made it possible to increase the output of foodstuffs, and the assortment of them has become more varied. Thus, in the past three years, in comparison to the annual average during the 10th Five-Year Plan and the first years of the 11th Five-Year Plan, the production of sugar from beets has risen by 11 percent, the production of margarine products--by 15 percent, and the production of confectioneries--by 12%. The production of mineral water, nonalcoholic beverages and other food products has increased significantly.

However, the rate of growth in their production still does not provide for fully satisfying the population's needs for a number of products.

During the 12th Five-Year Plan the food industry, in close integration with agriculture, must provide for a further steady growth in the production of foodstuffs and the improvement of their quality.

The food industry is one of the main consumers of agricultural products, which it is important not only to obtain in a large gross volume, but also not to lose in the process of harvesting, procurement, storage and processing, and to convey to consumers in the form of final products at a high level of quality.

Large and important tasks and specific problems have been set before each branch of the food industry. But the requirements are the same--to complete the transition to an intensive path of development, to make much better use of fixed assets, production capacity and material, financial and labor resources, and to substantially improve the quality and expand the assortment of products produced.

Sugar beet production is one of the leading branches of the agroindustrial complex. Satisfaction of the economy's demand for such an important product as sugar depends on the state of affairs in that branch. Increasing the production of sugar beets also makes it possible to substantially supplement feed resources for the needs of animal husbandry.

The Basic Guidelines for the USSR's Economic and Social Development in 1986-1990 and the Period up to 2000 provide for raising the gross harvest of sugar beets to 92-95 million tons and the production of sugar from beets to 10-11 million tons by the end of the 12th Five-Year Plan. A complex but feasible task.

The state allocates large capital investments and material and technical resources for the development of beet growing and the sugar industry. Kolkhozes and sovkhoses have been provided with modern machinery for growing and harvesting sugar beets, and with mineral fertilizers and herbicides. Production capacity in the sugar industry has been growing annually.

At the CPSU Central Committee's June (1986) Plenum it was especially stressed that the main path to attaining the high productivity of farmland is the wide use of intensive technologies.

The strengthening of beet farms' material and technical base, the development of new high-yield varieties, and the improvement of the quality of sugar beet seeds have made it possible to widely introduce intensive sugar-beet farming technology into use in production. In 1985 it was being used on 70 percent of the area sowed to sugar beets. The increase in the harvest attributable to the introduction of intensive technology came to an average of 43 quintals per hectare, and the additional gross beet harvest exceeded 10 million tons. Now thousands of farms located in various zones of the country are harvesting from 300 to 350 quintals and more of sugar beets per hectare with low labor outlays.

The results of many leading collectives show how much beets and sugar a hectare of sugar beets can yield, and what great untapped potential kolkhozes and sovkhoses have for increasing beet production. Thus, the team of Ye. N. Parubik, twice Hero of Socialist Labor and USSR State Prize winner from the Kolkhoz Imeni Suvorov in Zhashkovskiy Rayon, Cherkassy Oblast, has obtained 505 quintals of sugar beets or more per hectare over the course of many years. In 1985 crop yield was 524 quintals per hectare, which equals 80-85 quintals of sugar. His friends and rivals from the team of F. S. Gnedash, a USSR State Prize winner from the Progress Kolkhoz, obtained 514 quintals of sugar beets

hectare last year. On the whole, the kolkhozes of Zhashkovskiy Rayon, which have been actively cooperating with the All-Union Sugar Beet Research Institute for many years, harvest more than 420 quintals per hectare of sugar beets a year on an area of 11,400 hectares.

Beet growers on the Zarya Kommunizma Kolkhoz, a winner of the Order of the Labor Red Banner in Korenevskiy Rayon, Kursk Oblast, regularly obtain high harvests. In recent years they have harvested from 524 to 603 quintals of beets per hectare on an area of 600 hectares.

The secret of the success of those who have been in the forefront lies not in some sort of special conditions but in a high degree of technological discipline, knowledge of the specific features of industrial technology, and the creative application of scientific advances with a view to specific production conditions.

The success of the introduction of intensive technology for raising sugar beets and the improvement of the efficiency of this technology are directly dependent on the quality of sugar beet seeds supplied to farms. The improvement of seed quality should become an object of special concern for the executives and specialists of sugar-beet seed farms and seed plants. The standard for seeds supplied for the planting of industrial sugar beets should also be revised.

The knowledge, experience and skill of specialists and machinery operators are among the extremely important conditions that determine the success of the introduction of intensive technology. Therefore, the training of qualified personnel should be constantly at the center of attention of the agroindustrial committees and the rayon agroindustrial associations. First and foremost in this connection should be the holding of practical seminars for farm machinery operators to master the skills of putting together machinery aggregates, adjusting machinery, and adjusting machinery attachments for the high-quality performance of technological processes with respect to developing weather conditions and the specific features of each field.

It is inconceivable that the tasks set for workers in sugar beet production could be accomplished without the active participation of science. Today, when the questions of selection, seed production and the production and processing of beets have been organizationally consolidated, the necessary conditions have been created for the in-depth development of comprehensive scientific research on beet growing and the sugar industry, and for improving the productiveness of such research. The Sugar Beet and Sugar Research and Production Associations and the employees of the seed farms, the seed plants, the kolkhozes and sovkhoses, and the sugar refineries must concentrate their efforts first and foremost on working out and accomplishing the tasks that determine the acceleration of scientific and technical progress in the branch.

Special attention should be given to speeding up the development and introduction of high-yield varieties of monosperous beets with a high sugar content and technological properties that meet the requirements of intensive technology, and to the development of effective measures for protecting beets from disease and pests.

Seed production by the nontransplant method, whereby labor outlays are substantially reduced in comparison to the traditional transplant method and the seeds acquire increased biological activeness, should receive widespread introduction in the country's southern regions. The scientists' tasks are to develop a technology for nontransplant seed production that can ensure the stable production of seeds by this method regardless of developing weather conditions for the wintering of plantings.

Fundamentally new technologies for the cultivation of sugar beets that provide for the further intensification of beet growing need to be developed. In this connection, in our view, attention ought to be given to the development of work on the perfecting and introduction of the technology for the production of sugar beets by the hotbed method.

During the 12th Five-Year Plan it is planned to further expand the capacity of sugar refineries, and more than half of the increased capacity is to be created through the reconstruction and expansion of existing enterprises.

In order to utilize sugar beets as completely as possible, reduce losses and increase the yield of sugar and improve its quality, it is extremely important to focus the efforts of scientists and producers on speeding up the introduction of completed scientific and technical developments pertaining to the improvement of existing methods for receiving and storing sugar beets and the development of new ones, the automation of sugar-beet quality control, the intensification of technological processes, and the improvement of the efficiency with which thermal-energy and material resources are utilized.

Considerable difficulties arise in the fat and oil industry, which has the job of meeting the country's demand for vegetable oil and the products of its processing. These difficulties are related to a shortage of raw material, a decline in its quality, and shortcomings in its storage and processing. In recent years plantings of sun flowers have declined on many kolkhozes and sovkhozes, and their yield and oil content remain low. Sunflower hybrids have begun to be introduced on a broad scale; they are superior to regionalized varieties in terms of their yield, are suited to mechanical cultivation, mature simultaneously, and provide for a higher yield of oil per hectare. At the same time, the processing of seeds of these hybrids requires a change in technology and special production equipment, since their oil content is somewhat lower than that of the regionalized varieties, and this raises the unit-cost of the final product. Therefore, in order to expand the production of sunflower hybrids, it is necessary to proceed on the basis of a comprehensive national economic evaluation of the effectiveness of growing and processing them in terms of end results.

Recently many farms have reduced the area planted to sunflowers, calculating that this will create favorable conditions for improving farming techniques and obtaining a larger harvest on a smaller area. However, in practice this has not always been confirmed everywhere, and reductions in planting areas have not been accompanied by increases in crop yield. Therefore, one task of considerable importance for the specialists and executives of kolkhozes and sovkhozes is, along with the implementation of measures to increase the crop

yield of sunflowers, to adjust areas of planting and assign to this crop as much field area as is needed to guarantee the fulfillment of plan assignments for the sale of oil seeds to the state.

In order to fulfill plan assignments for the production of vegetable oil as provided for by the country's Food Program, it is necessary to improve plant selection and seed production, to strictly observe the proper technology for the cultivation of oil crops, and to implement a set of measures for the technical reequipping of processing enterprises.

During the present five-year period, enterprises in the fat and oil industry will continue work on introducing a technology for the comprehensive processing of oil seeds that includes production of feed and food phospholipids and food protein. It is planned to introduce highly efficient equipment into use in production, including carousel-type extraction units, press aggregates, and units for the drying and active ventilation of oil seeds.

At the present time, plantings of rape are expanding in the country, especially in regions where climatic conditions do not permit the growing of sunflowers and other oil crops. Positive experience in obtaining stable yields of spring rape has been gained on kolkhozes and sovkhoses in the Belorussian SSR, while similar experience with winter rape has been obtained on farms in the Ukrainian SSR.

The existing capacity of oil mills can handle the processing of substantial quantities of delivered rape seed. At the same time, in regions where there are no oil mills, as well as for the general purpose of reducing shipments, it would be a good idea to establish interfarm enterprises for processing rape seed, or to organize the processing of this seed directly on farms.

Considerable work must be done to increase production, improve quality, and expand the assortment of products in the margarine industry. Over the years of the five-year period the production of margarine products will rise by a factor of 1.4, and mayonnaise production--by a factor of 2.5.

In the confectionery industry it is planned to increase output while lowering sugar consumption through the use of fruit, berry, milk and other additives. In 1986-1990 the production of cookies, crackers and bisquits will be increased by a factor of 1.3, and the production of fruit and jam-filled products--by a factor of 1.8. The production of packaged products will more than double. It is planned to organize the production of glucose syrup, which is not only a fully adequate but also an economically more advantageous replacement for sugar, on a wide industrial scale.

Concrete and purposeful measures are being carried out in the country to combat drunkenness and alcoholism. The production of alcoholic beverages has been substantially reduced. The enterprises and shops that previously produced alcoholic beverages need to be retooled in a short time for the production of products for which there is consumer demand. This work is already being carried out. The production of nonalcoholic beverages is increasing substantially, and by 1990 it will be triple the level of 1985.

The assortment of high-quality nonalcoholic beverages will be substantially expanded through the wide use of local raw materials and wild fruits, berries and herbs. The shift to the production of nonalcoholic beverages with increased stability and longer shelf life is to be carried out everywhere by the end of the five-year period.

Considerable work must be done in viticulture. The area planted to table varieties of grapes must be expanded on an accelerated schedule by reducing plantings of processed varieties and carrying out the construction of grape storage facilities. Suffice it to note that the quantity of grapes shipped this year for use in fresh form and for processing into juice, concentrate and other food products will be twice the level of 1985.

This is no easy task. In order to accomplish it, it is necessary to concentrate the efforts of the employees of agricultural production, industrial enterprises, trade, the transport organizations, and material and technical supply.

One of the most widely consumed beverages is tea. During the 11th Five-Year Plan plans for the procurement of tea leaf and production of tea were fulfilled. Capacities for the processing of tea leaf and production of packaged tea were increased. For the first time in the practice of world tea production, in the USSR the problem was solved of utilizing secondary raw-material resources, which are being used to produce liquid and dehydrated tea concentrates, tonic beverages and natural food dyes. At the same time, consumers frequently express justifiable complaints about the low quality of tea.

During the 12th Five-Year Plan it is planned to further increase the production of tea leaf. By 1990 the harvesting and processing of tea leaf are to reach a level of 740-750 tons a year. The task of improving tea quality should be worked on at all levels of the technological process: growing, harvesting, initial processing and production of the final product.

Work is to continue on expanding the number of tea plantations established with new, high-quality varieties of tea plants that are distinguished by high yield, quality and good technological properties. The irrigation of tea plantings and the supplying of tea farms with machinery and machine aggregates for harvesting tea leaf will be carried out at a faster rate.

It is necessary to step up work on expanding the assortment of products, and setting up the production of concentrated tea beverages, instant tea, and tea with various aromatic food substances as additives, as stipulated in the USSR Food Program.

It is gratifying to note that in recent years there has been a trend toward the reduction of the demand for tobacco industry products. In this branch the introduction of new technology for the preparation of tobacco will be expanded, and work will continue on the mechanization and automation of production processes with the aim of reducing labor outlays and improving employees' working conditions.

The CPSU Central Committee and USSR Council of Ministers have adopted a decree on accelerating the development of physical facilities and equipment in the processing branches of the agroindustrial complex in 1986-1990, allocating substantial additional capital investments for this purpose. A top-priority duty and extremely important obligation of the executives of the state agroindustrial committees of the union and autonomous republics, the kray and oblast agroindustrial committees, and the rayon agroindustrial associations is to provide for the carrying out locally of organizational work related to the more complete mobilization of resources and capacity for the unconditional fulfillment of the assignments established by that decree.

The food industry has been set large tasks related to the implementation of scientific and technical programs that envisage the development of new machinery and technology and the improvement of existing ones to provide for the comprehensive utilization of raw material and the intensification and automation of food production processes in the sugar, confectionery, starch and syrup, beer and nonalcoholic-beverage, salt and other branches of industry.

Work on the establishment of highly mechanized and automated food enterprises will be continued. It is planned to put new automated systems for the control of technological processes into use, to modernize the complex of technical devices in existing automated management and control systems with the use of new-generation computers, and to introduce optimization planning in existing branch-level automated management systems.

It is planned to substantially expand the use of the achievements of biotechnology in the food industry branches in order to intensify technological processes and improve the quality and expand the assortment of products.

As is known, one means of increasing the production of output and improving production efficiency in the food industry is the comprehensive processing of agricultural raw materials and the shift to waste-free, resource-conserving technologies. The carrying out of this work during the current five-year period will make it possible to utilize a large quantity of secondary raw-material resources in the food industry. In agriculture it is planned to make more complete and efficient use of beet pulp residues, oil-seed meal and cakes, potato pulp, grain and potato distillers' grains, and grape and apple pomace.

Over the years of the 12th Five-Year Plan it is planned to carry out in the food industry branches a concrete program of measures related to new machinery that reflect the priority areas of scientific and technical progress.

In the 12th Five-Year Plan we must persistently continue work to develop an integral management system and further improve the economic mechanism, and must seek and find new and more effective forms and methods of planning and organizing production. The introduction in agriculture and industry of the collective contract, which gives employees a solid stake in improving the quality of work and increases their responsibility for end results, should become an object of special concern.

Over the course of two years an economic experiment was carried out in the Ukrainian SSR food industry to expand the rights of production associations and enterprises in planning and economic activities, and to enhance their responsibility for performance results. In 1985 a broad-scale experiment was also carried out in the food industry of the Belorussian SSR, the Moldavian SSR, the Azerbaijan SSR, the Latvian SSR and the Estonian SSR.

As the experiment results showed, a large number of the production associations and enterprises participating in it overfulfilled established assignments for the production of foodstuffs, the raising of labor productivity and profits, the reduction of unit-costs, and the improvement of product quality. An increase in production was achieved while simultaneously reducing the number of employees. The fulfillment of commitments for the delivery of products in accordance with contracts was substantially improved. Labor collectives that performed well received greater opportunities for the material rewarding of employees, the better satisfaction of working peoples' needs for housing, preschool children's institutions and Young Pioneer camps, and the resolution of other social questions. The production development fund played an increased role in the technical reequipment of production at these enterprises.

Taking the accumulated positive experience into account, starting in 1986 enterprises in the food industry of all the union republics' state agroindustrial committees, and all industry under union subordination, with the exception of certain wineries and essential-oil enterprises, have been working under the new conditions of economic management.

At the present time, enterprises in the food industry belong, together with the kolkhozes and sovkhoses, to the unified system of the USSR State Agroindustrial Committee. The new organizational structure required an appropriate economic mechanism capable of ensuring the effective development of all of its units. In March 1986 the CPSU Central Committee and USSR Council of Ministers adopted a decree "On the Further Improvement of the Economic Mechanism of Economic Operation in the Country's Agroindustrial Complex." This decree provides a complex of measures for expanding the economic rights and increasing the economic interest of all units in the agroindustrial complex--especially the kolkhozes, sovkhoses and industrial enterprises--in achieving high end results and satisfying the demands of consumers for foodstuffs, and for increasing their accountability for doing so.

The employees of the agricultural and processing enterprises of the agroindustrial complex see their lofty duty to consist in utilizing the favorable new conditions of economic operation to fulfill the plans of the five-year period and their socialist pledges. This is indicated by the results of the first six months of this year. In this period, the production of sugar, vegetable oil, margarine and confectionery products, nonalcoholic beverages and other products rose in comparison to the first six months of 1986 [sic]. It is necessary to further increase the growth rates of foodstuffs and to ensure that the five-year plan's projected levels are attained in a shorter time.

These days employees in agriculture and the processing enterprises are living with a single concern--to fully gather the harvest of sugar beets, oil seeds, grapes and other crops, and to handle it efficiently in order to increase the production of high-quality foodstuffs from procured agricultural raw material and make a worthy contribution to fulfilling the decisions of the 27th Party Congress, the CPSU Central Committee's June (1986) Plenum and the USSR Food Program.

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FOOD PROCESSING, DISTRIBUTION

NEW METHODS OF TRADE IN KAZAN MARKETPLACES DESCRIBED

Moscow PRAVDA in Russian 17 Sep 86 p 5

[Article by PRAVDA correspondent N. Morozov: "The Fairs are Lively in Kazan: How To Develop New Forms of Supplying City Dwellers With Fresh Vegetables"]

[Text] Kazan--On Sundays and holidays in Kazan the fairs are lively: If you want to pass them by, you can't do it. The market decks itself out in advance like a wealthy bride-to-be, adorns itself with multicolored garlands of vegetables and fruits, stokes up its samovars and hospitably invites you to its intricate trays and stalls: "Welcome!"

Everywhere there is cheerful talk, music and jokes. Even if you aren't tempted by the redness of Kama apples, the gold of forest nuts, or the aroma of the mushroom stall, a sense of festivity will remain in your heart. Last year Tatariya's markets were deemed best in the all-Russian competition.

But it's rightfully said that beauty is not just skin deep. This autumn's "pies" have been weighty. The grain growers put 1,400,000 tons of grain in the granaries. It is anticipated that there will be plenty of garden produce for sale. An interesting detail: this year the republic's rayons themselves determined the area that was to be planted to potatoes. They reduced it by 20,000 hectares, but they produced twice the harvest of last year.

The fairs offer a gladdening abundance of vegetables and fruits on Sundays and holidays. But what does the market offer a city dweller on ordinary days? How are the kolkhozes and sovkhoses using the right that has been granted them to sell 30 percent of the produce they grow? It turns out that only four local farms regularly sell vegetables in the capital's [i.e., Kazan's] seven markets. In the first six months of this year the autonomous republic's kolkhozes and sovkhoses sold only about 300 tons of vegetables and potatoes to city consumers. Yet 106 of Tatariya's farms concluded trade contracts with the republic kolkhoz market administration. According to these documents, nearly 3,500 tons of produce were supposed to come from the countryside to be sold in the city.

"Alas, we do not have the right to hold a farm accountable for the failure to observe a contract," says A. Trufanov, director of the market administration. "They are confirmed by the contracting parties themselves, and no penalties are provided for. Everything depends on one's word."

Farms have a direct economic interest in maintaining a daily sales outlet in the city. Take the Berkutovskiy Sovkhoz in Vysokogorskiy Rayon. It has been selling vegetables, greens and potatoes in Kazan since August. The two sales clerks and driver of a small truck who are employed at this work have already added 30,000 rubles to the farm's coffers. By the end of the year they figure to earn at least another 50,000 rubles.

"There's no use hiding the fact that in the past, when it was hard for us to get to the market, a great deal of greens were lost," says the sovkhov's director Ya. Yefimov. "Take parsley and dill: you keep them in storage for a few hours, and you throw them away. But now we offer the consumer greens that have just been picked. We are presently expanding our vegetable storage facilities in order to keep our farm's stall open at the market during the winter, as well."

The city consumer also profits from this financial interest. Today, when the consumers' cooperatives have also begun to make more energetic procurements and kolkhoz trade has started to get its footing, the owners of private plots have started to lower their prices. Take tomatoes. Before the appearance of the kolkhoz stalls, their price had risen to two and a half rubles. Once the marketplaces opened, the price dropped to half that, and then to a third.

So why are the farms, nevertheless, timid about selling their wares in the markets, and why don't they observe contracts? Let's listen to the answer given by G. Khayrullin, chairman of the Kolkhoz imeni Vakhitov. It is a large farm located near Kazan. It grows vegetables and has 650 hectares planted to potatoes.

"There's no transport," he complains. "You yourself understand that the harvest isn't finished. It's an extremely busy time."

True, it's a busy time. But let's look at the root of the matter. Every day several trucks are sent from the farm to Kazan. Often they are empty. Furthermore, in the spring a representative of the market administration offered the executives of the suburban kolkhoz the use of the services of the Tatar Transport Agency--they all refused.

No, it's apparent that the burden of the old economic thinking is keeping the executives of this and other farms from the market. They have one concern only: to be able to turn in a victorious report, and in the pursuit of gross output they lose sight of the value of the kopeck. On the one hand, they do not want for the collective farmers to be diverted from the harvest and go in to the market during the harvest season. On the other, they involuntarily contribute to this. After all, if the farms saturated the market with inexpensive vegetables, there would be fewer individuals who wanted to compete with the farm stalls.

It sometimes happens that the local soviets also follow wrong tactics with regard to kolkhoz trade. Here is just one fact. The Karibashskiy Sovkhoz hauled onions to the city of Bugulma and, in accordance with an agreement with the market's management, started to sell the produce, which was scarce at that time, for two rubles a kilogram--a ruble cheaper than asked by those who brought the produce from their own gardens. Soviet executive committee officials found this price speculative, and they forced the sovkhos to reduce it by a factor of four. It's hardly likely that after that experience the Karibashskiy Sovkhoz will show up in Bugulma again.

Of course, at the peak of the harvest season, some farms really don't have any extra hands, and trucks are difficult to free up. Yet this is precisely the time when the vegetable season is at its peak. How can the influx of kolkhoz produce to the market be increased? It's clear that the best thing would be to open permanent farm stalls at all the markets. Say, the Vegetable Grower Sovkhoz in Zelenodolskiy Rayon opened its own stall in Kazan's central market and invited female higher school students to work as sales clerks during the summer.

The sale of green produce can be assigned only to the bureau of trade services--there are presently 17 such organizations of sales clerks at the republic's markets. But in order for the bureaus to work at full strength, specialists think they need to be shifted to a piece-work basis of pay. The RSFSR Ministry of Trade made an attempt to do so: at the end of May 1985 the minister issued an order to shift one or two trade services bureaus in each large city to piece-work pay on an experimental basis. The Kazan markets were the first to take up the idea--two bureaus began to work on the new basis. The results were excellent. In six months, while keeping the same number of sales clerks, they increased the sale of produce by 80 percent, although the wage fund rose by only 20 percent.

However, the Russian Republic Office of the USSR State Bank and, after it, the Tatar Office, imposed a ban on the development of the experiment. The autonomous republic's markets generate a million rubles of profit annually, but they do not have the right to hire an additional person on their relatively small staffs and give people a material stake in their work. It's reached the point that the markets' staffs do not have a specialist who can appraise produce quality. Moreover, the market's pulse is significantly subject to the effect of the seasons. In the summer and fall trade picks up, and this is the time when seasonal markets open up; in the winter there is a marked fall-off. But the framework of the wage fund does not permit the organizers of kolkhoz trade to regulate the number of employees. During the peak time there's a personnel crisis, but in the winter people in the half-empty pavilions have nothing to do. It would be a good idea to pick up produce from peasant households locally. So far the consumers' cooperatives are not making much use of this source. Yet how many working hands it would free for participation in field work.

The golden autumn gladdens the villagers with days of fine weather, which means that they will be able to fully gather all they have grown. And the city dweller shares their joy--his vegetable table will be more abundant. The farmers are called on to justify this hope both at the time of the noisy and festive fairs, and on ordinary workdays.

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COAL INDUSTRY FORECASTING METHODS EXAMINED

Moscow UGOL in Russian No 9, Sep 86 pp 10-14

[Article by Candidate of Engineering Sciences V. V. Guryanov (IGD [Mining Institute] imeni A. A. Skochinskiy): "Improvement of the Economic Substantiation of Measures for Scientific and Technical Progress"]

[Text] Intensive methods for developing the national economy that are based upon a speedup of scientific and technical progress are necessitating a rise in the role and significance of feasibility studies for determining the directions for reequipping branches of industry over the long term, for planning scientific and technical achievements, and for choosing routes for the most rapid and effective use of the results of research that has been performed and of developments that have been made at production facilities.

In the coal industry the significance of this work is being constantly increased because of the reequipping of enterprises and associations, the wider development of the mechanization and automation of production processes, and the necessity for converting to the development and wide introduction into production work of more complicated technologies and technical resources.

It is known that technical and economic substantiation is a mandatory component part of all stages of planning coal-industry development: from substantiation of the Master Plan for developing and deploying the industry during a 20-year period and the forming of a unified scientific and technical policy (YeNTP) to planning the development, mastery and introduction of definite objects for new technology and to the reequipping of specific enterprises, departments and sections.

An analysis of the status of this work within the industry indicates that in recent years conduct of the appropriate feasibility studies and the quality thereof have been improved, mainly because of the conversion of enterprises, production associations and scientific-research and design-development institutes to the cost-accounting system for organizing the work to create, master and introduce new equipment, based upon job orders (or contracts).

However, organization of the conduct of feasibility studies for the development of the industry and the scientific and technical level of these operations still do not always meet modern requirements.

Thus, despite the large amount of work done to reequip enterprises and the increasing adequacy of the provisioning of new and modern equipment to them, the technical and economic indicators of the work of certain associations and of the industry as a whole have deteriorated in recent years. Even the existing forecasts for the industry's development cannot be called optimistic.

It has been established, for example, by an analysis of the papers for evaluating possible paths for developing Pecora Coal Basin enterprises that, for the conditions of this region, which are usually viewed as favorable, an insignificant increase in labor activity by the year 2000 is typical at existing unreconstructed enterprises (underground mines and preparation plants), even under the variant for the maximum possible volume of coal mining.

A characteristic feature of the documents for the industry's long-term development is that the indicators set for new large enterprises for prime costs for coal mining and coal preparation are low; they are, as a rule, lower than the average for these indicators throughout the basin.

Two main conclusions can be drawn from what has been said: first, the coal industry has not had an entirely objective approach to evaluating and reporting the actual contribution and possible yield of measures for scientific and technical progress in its analyses of the actual results of production activity in the designs of new enterprises (or of those being rebuilt), and in measures for development of the industry, an approach that is caused by a definite distrust of the potential of the new equipment and its designed indicators (or specifications); and, second, the technical and economic parameters for most of the technologies and measures that are new or are being developed are not high enough (in comparison with their counterparts).

The conclusions noted definitely are the result of existing deficiencies in the organizational and methodological support of the feasibility studies that develop many of the directions for developing the industry and of measures for scientific and technical progress.

An analysis of methodology and practice in substantiating the scheme for developing and deploying the coal industry over the next 30 years indicates that possible and technically desirable options for developing enterprises are not by far being developed in these papers. In particular, the design institutes examine, as a rule, the directions for the technical development of enterprises over the long term only in single-option form, based upon the indicators for progressive equipment and technology that are recommended by the appropriate prime institutes (IGP Imant A. A. Shchelnikov, IOFT [Institute for the Preparation of Solid Mineral Yields], VNIIMMIS [All-Union Scientific-Research Institute for the Organization and Mechanization of Mine Production], VNIIPuglemash [All-Union Scientific-Research and Industrial-Production Institute for Coal-Related Machinery Building], and so on). In this case the technically desirable variants for rebuilding enterprises are ignored, and the potential for increasing the labor, technical and economic intensity of their activity, based upon the realization of measures for reequipping production facilities, is not being assessed. The Master Plan (draft) on scientific and technical progress that was developed by the design

institutes, unlike the methodology previously accepted [1] by scientific-research institutes, is not being examined and is not being subjected to expert review. Thus, the indicated substantiations of the possibilities for developing the industry that are opened up by scientific and technical progress are not being adequately considered, and the papers prepared and the conclusions drawn have not been adequately presented.

Such an approach to justification of the scheme for developing the branch over the long term does not provide for a comprehensive examination of the whole arsenal of new equipmental and technological solutions that should be considered relative to each specific enterprise.

In order to work out scientifically validated directions for technical improvement of the coal industry over the long term, scientific-research and design-development organizations are analyzing the technical level of production, are making up long-term forecasts of scientific and technical progress, and are carrying out scientific research to improve the methodology of and organization for conducting these operations. However, as has already been stated in work [2], the content and quality of performance of the indicated operations do not satisfy modern demands.

The main deficiency of these operations is the fact that they do not carry out completely the task assigned to them, that of being a component part of the mechanism for the discovery, analysis, preparation and selection of the most important problems of scientific and technical development. Actually, an analysis of the content of, for example, standards documents developed by the industry's institutes under the supervision of IGD imeni A. A. Skochinskiy in accordance with the Main Directions for Developing the Coal Industry indicate that, in essence, these operations are a result of the generalization of scientific research and developments that have been conducted or contemplated and their expected results, not a comprehensive multiple-option feasibility analysis of the recognized requirements of enterprises and associations for the technical improvement of production and for determining the directions for executing these measures.

These documents and previously produced forecasts of scientific and technical progress were developed practically in single-option form. An appropriate integrated retrospective analysis for improving production equipment and developing science and technology did not precede them. The documents of these forecasts lack chapters that make a comparative analysis of the data of previously produced forecasts with the plan indicators and the new forecast data, and there are a number of other deficiencies. The methodologies for scientific and technical forecasting are being improved slowly. The status of the forecasting of scientific and technical progress in the coal industry corresponds to a great extent to the following situation: "There are unresolved problems in the area of forecasting theory and practice....Not everywhere has there existed a definite system for forecasting..., and a standard methodology for the preparation of exploratory and standard forecasts for each industry and region and for each specific research profile is required" [3].

The coal industry must change the whole direction, content and methods for developing forecasts of scientific and technical progress and must determine

more accurately the content of the exploratory (research) and standard (program) stages of the forecast and the tasks and methods for generalizing them.

In particular, the forecast of scientific and technical progress for 1976-2010 should be oriented to the validation of technically desirable directions for the technological improvement of the industry, based upon a study of possible ways for using existing scientific and technological achievements, and to incorporating the results obtained in the calculations for substantiating the scheme for developing and deploying the industry's enterprises over the next 15-20 years.

In essence this should be a research (exploratory) forecast of the possible directions for updating the equipment of coal-industry enterprises which is oriented to satisfying the maximum requirement for an increase in the amounts of mining and processing of fuel and, consequently, to accounting fully for the influence of all possible degrading factors on the effectiveness of production, based upon the premise that the forecast and the planned rates of development of scientific research and development should surpass the possible (including even the maximum) rate of development of industrial production.

Taking into account the large amount and the complexity of the papers that are being prepared and processed and the data and the indicators for a multiple-option forecast of scientific and technical progress over the long term in such an industry as coal, which features numerous plans, it is desirable to break this forecast down into a number of component parts, after separating forecasts in the area of coal and shale mining by the open-cut and underground methods, the preparation and processing of the coal, and the construction of enterprises of the coal industry and of machinebuilding and instrumentmaking that are related to coal.

The papers and the data of these subbranch forecasts should be mutually coordinated and consolidated for the branch as a whole during preparation of the comprehensive program for the coal industry's scientific and technical progress that is being developed for the next 20 years, within the framework of the forecast for the development of the country's fuel and power complex, and also during validation of the Master Plan for the development and deployment of the industry for the next 15-20 years.

Scientific and technical progress in any branch of production can be viewed as the mutually coordinated improvement of the technical basis (or the level) of the production associations (and enterprises) of that industry and the development of its scientific and technical arsenal, that is, that sphere of science and technology that serves said production branch, which supports its progress and which has become known as the industry's science. The process of improvement of the first component of this system is usually carried out by a definite listing of technical and economic indicators, such as the labor, materials and energy intensiveness of production, the amount of material losses, and a number of others. The second component part, as a rule, is evaluated by a system of specific criteria, which are based upon a comparison of the parameters of similar facilities for new technologies (types of equipment, techniques, materials and so on) that are in existence or are

being developed with definite characteristics of the level of development of the given area of science and technology and the potential thereof.

In this connection, in the development stage of the research forecast on scientific and technical progress for a definite production sphere (for example, the mining of coal and shale, the preparation of the fuel, and so on), it is desirable to develop this forecast along two relatively independent directions: a forecast of the rise in the technical level of production associations (or enterprises) in some production sphere, and a forecast of the development of science and technology in that sphere.

It is natural also that the grounds for the variability of these diversities in forecasts on science and technology will be different.

Thus, when forecasting the technical level of the industry's production, it is desirable to study variants in the technical development of production associations and enterprises, taking into account as much as possible, the use of:

the achievements of science, technology and advanced experience already assimilated by the enterprises (as of 1 January 1986);

the achievements of science and technology and advanced experience assimilated by the industry, and also the large-scale realization of new equipmental and technological solutions that passed industrial verification prior to 1 January 1986 at the test-model (or the test-batch) stage or that passed verification at the prime enterprises; and

the newest achievements at all enterprises of science, technology and advanced experience, including basically new equipmental and technological solutions that are based upon existing patents, inventions and other informational output (as of 1 January 1986).

The amounts of the resources necessary (financial, material, and so on), the types of operations (survey, design, scientific-research, construction, installation, and so on), and the expected technical and economic results in the form of an increase in production capacity, a reduction of labor intensiveness of the work, the saving of supply and equipment resources, the benefit to the national economy, and so on should be determined and computed in consolidated fashion for each of the indicated variants.

A choice should be made of the most desirable and economically advantageous directions for improving production technically, based upon the subsequent feasibility analysis of possible variants for the long-term technical development of the industry and of the amounts of work and the resources that are necessary for implementing them, as well as of the results achieved.

In its turn, a research forecast of the development of coal-industry science and technology should be oriented primarily to a search for and validation of the most probable, desirable and effective directions for scientific research and design developments that will provide for progressive improvement of the equipmental basis for production in the industry.

In examining and analyzing the possible directions for developing science and technology, the amounts of the necessary resources and types of operations, the results expected in the area of research and development that are being conducted, and the effectiveness of their use in the coal industry and in the national economy should also be computed and evaluated in consolidated fashion.

While making this forecast, the following matters should be studied:

the status and prospects for the possible development of the work on the creation of new and the improvement of existing traditional technologies, mechanization and automation resources, equipment, materials, and standards and methodological documents in all spheres of the industry's production;

the status and prospects for developing basic research on problems of mining production (study of the principles and the nature of changes in the properties and parameters of the coal block under various mine-geology conditions, while it is being acted on during the production activity of underground and strip mines, and so on);

a comparison of the level and directions for developing the industry's science, in regard to appropriate elements and types of production, with other mining industries (ferrous and nonferrous metallurgy, the chemical, mineral-fertilizer and building-materials industries, and so on);

the status of and prospects for developing nontraditional (basically new) methods for mining coal and obtaining the energy incorporated in it;

formulation of the requirements and tasks laid on basic science and the allied branches of the applied sciences;

the status of and prospects for developing the personnel potential for the industry's science;

the status and prospects for developing the laboratory, supply-and-equipment and experimental bases for the industry's science; and

a comparison of the level of development of the industry's science (in the appropriate directions) with that reached in countries with developed coal mining; an analysis of the causes of existing lags; substantiation of the directions for possible international scientific and technical collaboration; and a number of other questions.

The next step of forecasting research, which is based upon the results of the preceding stage, must be viewed as a program (standard) forecast of the directions of technical improvement in production and of the development of science and technology in the period up to the year 2005.

The directions of scientific and technical development of the coal industry for the indicated 15-year period should be worked out in accordance with the documents of the scheme for developing and deploying the industry's enterprises during this same period. In this case, the indicated directions will be forecast, based upon specific amounts of production, with a regard for

the known mine-geology and production-equipment situations of enterprises that exist or are put into operation.

The main purpose of this forecasting stage should be the discovery, analysis and choice of the directions for scientific and technical progress, which are the objectively necessary requirements for the industry's technical development during the long-term period being examined. In so doing, substantiation (or refinement) of the coal industry's unified scientific and technical policy (YeNTP) should be considered the most important task of forecasting scientific and technical progress during the future 15-year period.

It is known that identification and substantiation of the industry's most important scientific and technical programs and the priorities and proportions for distributing the resources that are allocated for scientific research, design development and the reequipping of production and facilities, and development of institutions for the industry's science and the experimental bases for them are the basis for formulation of the YeNTP.

Based upon this, the main tasks of the stage for forecasting scientific and technical progress that is being examined should also be defined. In so doing, the most important of these tasks should be that of substantiating industry (or interindustry) scientific and technical programs and the basic tasks for developing the science and technology that they include, as well as measures for reequipping production facilities in the coal industry.

This stage of forecasting scientific and technical progress, just like the preceding one, should consider multiple variants. The papers of the preceding forecasting stage (the research forecast) will enable the desirable number of variants and their possible parameters to be determined.

Taking into account the coal industry's specifics as a mining branch, with high labor intensiveness of production as a most important criterion, it is recommended that, when studying and comparing possible options of its scientific and technical developments, the indicator of reduction in the labor intensiveness of production (or its inverse indicator--increased labor productivity) be adopted as the most important one.

Such technically possible and desirable variants of the industry's scientific and technical development over the long term can be, for example, options that will provide for a 2.5-fold, 2-fold or 1.5-fold increase in labor productivity (or reduction in labor intensiveness) in the year 2005 over the plan for 1990.

In using known methods of systems analysis, particularly the method for the technological modeling of underground mines that IGD imeni A. A. Stakhanov developed, it is possible, as a result of the appropriate computations, to determine, for each of the indicated options for scientific and technical progress, indicators of the technical level of the appropriate production (or technological) processes that are being developed and the main parameters of the technical resources needed to accomplish them. Based upon a feasibility analysis and a comparison of the indicated data for all three options, it is possible to substantiate technically and economically the most desirable and objectively necessary areas for introducing known scientific and technical achievements and work on creating and assimilating

the production of new equipment, as well as exploratory research and development for the period up to the year 2005.

The proposed approach to the conduct of forecast-type research of the directions of scientific and technical progress (unlike the approach used) will answer the question of where existing financing and supply and equipment resources, the efforts of scientists, designers and factory mechanical engineers, and the existing capacity for experimental production should be aimed: at the modernization and an increase in the reliability of the equipment models being produced; at the design development and fabrication of new models whose parameters surpass the prototypes insignificantly; and at the creation of basically new equipment.

The suggestions set forth for improving methodological approaches to the development of scientific and technical forecasts for the long term will enable forecasts of scientific and technical progress to be converted into a reliable tool for scientific substantiation of the most important reference points and goals for the technical improvement of production and for determination of the most probable, promising and technically and economically desirable directions for studying the newest scientific ideas and engineering principles.

The necessity for developing and applying such an approach to the determination and choice of directions for scientific and technical progress in the industry is confirmed graphically by the practice of formulating industry (or interindustry) scientific and technical programs for both the 11th and 12th Five-Year Plans, which were made up basically on the basis of a simple generalization of proposals made by scientific organizations and prominent coal-industry specialists.

During each five-year plan the coal industry creates 350-450 specific new and modernized machinebuilding articles and about 200 new and improved technological processes. In so doing, in most cases the descriptions of the indicated innovations cite technical parameters and effectiveness indicators higher than those of the prototypes they replace. When these new items are put into production, their effectiveness actually often prove to be lower than planned.

There are many causes of this situation. The prevailing practice of a simplistic attitude of development organizations and of clients toward the quality of feasibility studies (TEO's) and engineering assignments (TZ's) that are being developed for creating innovations and toward monitoring, during industrial testing of these innovations and their acceptance for series production, of the observance of the parameters incorporated in them is not the least of these causes.

The situations that exist in the coal industry have established that, for each new development that is included in the branch plan for NIOKR [scientific-research and experimental design work], the developer should compile and the client should examine and approve a TEO that substantiates the urgency and the technical and economic desirability of the new item whose creation is being proposed. Checks that have been made verify that this requirement is not being met in all cases.

Cases have been found where feasibility studies either are not compiled at all or are being prepared formalistically and are not being approved by the client.

In many cases the content of these documents and the parameters they incorporate do not mobilize the developers to create items of new equipment at the level of world scientific and technical achievements or with effectiveness indicators that greatly exceed similar indicators of the prototypes being replaced. Unfortunately, the practice exists not only of revising the deadlines for performing NIOKR but also of changing the technical and economic parameters of development in the direction of a reduction. This is seen especially graphically when comparing the expected and the actual effectiveness indicators of the new equipment.

Thus, up until now TEO's for the conduct of NIOKR still have not acquired the status of a most important and necessary document, of a singular authorization document for the development that is planned (or in progress).

Obviously, this document's content requires appropriate revision. It would seem that its significance and validation would be greater if the results of patent research and a functional cost analysis (FSA) of future new article-building articles were appended to it.

FSA methodological techniques developed by Minelektrotekhprom [Ministry of Electrical Equipment Industry] that are widely used in the electrical-equipment industry and some other branches of machinebuilding and are recommended for wide use by GKNT [State Committee for Science and Technology] could become a reliable tool for evaluating objectively the economic desirability of creating new articles and modernizing existing ones.

The organization of TEO's for plans and of the steps taken to reequip coal-industry enterprises and production associations (or combines) also requires serious improvement. This problem acquires special urgency in connection with the decision of superior organs on the development of long-term programs for the technical reconstruction of the industry's production facilities and of plans for reequipping existing production associations (or combines) and enterprises.

The necessity for taking the indicated steps flows also from inadequate methodological work by the coal industry on matters of formulating the indicated planning documents.

In particular, the temporary methodology prepared by TsNIEIugol [Central Scientific-Research Institute for Economic, Scientific and Technical Information on the Coal Industry] [4] lacks precise principles and specific requirements for the substantiation of objectives during the reequipping of production facilities and a breakdown thereof by management level (the ministry, the production association and the enterprise).

The methodology of work [4] did not study questions of the methodological and organizational coordination of the content of and the procedure for developing specific-purpose comprehensive industry (or interindustry) scientific and technical programs and five-year plans for reequipping coal-industry

enterprises and associations (or combines), as well as annual industrywide plans for creating, mastering and introducing facilities for new technology and institute thesis-type plans, with plans for raising the technical level of production and for reequipping enterprises and associations (or combines).

Methodological and organizational questions on evaluation of the technical level of enterprises and production associations, in appropriate coordination with the work done in the industry to certify workplaces, which seem to us to be extremely important, were not reflected in the document in question.

All this testifies to the need for a great intensification of scientific-methodological and organizational support for major and complex work on the feasibility of long-term industry tentative plans and five-year and annual plans, as well as of specific work and measures for speeding up scientific and technical progress in the coal industry.

Based upon what was said above, and with a view to providing a high scientific level of TEO's for the directions of and measures for scientific and technical progress in the branch that are being developed, it is necessary:

to refine the existing methodology for working to substantiate the scheme for developing and deploying the industry's enterprises over a 20-year period, after examining multiple-option studies of possible directions for the technical development of existing enterprises (the possible options for rebuilding or reequipping them), based upon the data of a research forecast of scientific and technical progress within the industry;

to create a unified system of feasibility indicators that will be used at all stages of planning for scientific and technical progress and will provide for the mutual coordination of plan-type evaluations of the effectiveness of scientific and technical progress, the technical and economic level of producing output, and the pace of the economic updating of production facilities;

to charge the prime scientific-research and design-development organizations responsible for developing and realizing industry (or interindustry) scientific and technical programs with the conduct of consultant-type review of the feasibility studies of all the NIOKR and other organizational and technical measures planned under the program; and

to vest in basin-level and specialized scientific-research organizations and the appropriate design institutes and production associations (or combines) the responsibility for working on the TEO's of the prospects for developing them over a long period, as well as for drafting five-year and annual plans for reequipping these associations (or combines).

Experience in the mastery of specific-purpose program methods for planning scientific and technical progress has indicated that organization of the development and realization of the new major managerial decisions make sense and can be fruitful where this work is placed on a planned basis and fortified by the appropriate measures of an organizational nature.

Conclusions:

1. The coal industry is carrying out a major complex of scientific research and work on feasibility studies of the directions of and measures for scientific and technical progress. Transfer of the industry to intensive development methods requires a stepup of these operations and an improvement in the quality of their execution.
2. With a view to raising the scientific level and objectivity of substantiation of the unified scientific and technical policy and the scheme for developing and deploying the industry's enterprises over the long term and for formulating industrywide scientific and technical programs, it is recommended that the approach to the organization of scientific and technical forecasting for the industry be changed, based upon the development of a system of mutually related exploratory (research) forecasts of scientific and technical progress during a period of 20-25 years and of program (or standard) forecasts for the 15-year term.
3. In order to increase the effectiveness of the work of creating, mastering and introducing facilities for new technology, it is desirable to increase the role and significance of TEO's during the conduct of these operations, as well as the responsibility of developers and clients for observing the parameters and the technical and economic indicators of the future innovations incorporated in them.
4. It is necessary to improve the quality of substantiating documents and organization of the development of planning documents for reequipping the industry's enterprises and associations (or combines), based upon mutual coordination thereof with industrywide scientific and technical programs and with annual industrywide plans for raising the technical level of production and for creating, mastering and introducing new technology, as well as with thesis-type plans for NIOKR.
5. A rise in the role and significance of TEO's for the directions and measures for scientific and technical progress in the coal industry that are being planned requires a substantial intensification of work on the execution of scientific-methodological and organizational support for them, including promotion of the necessary scientific research on the indicated questions and a strengthening of the appropriate subunits in the industry's institutes, and also in the staffs of Union and republic ministries.

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CONSTRUCTION OF MINES IN INSTALLMENTS CRITICIZED

Moscow UGOL in Russian No 9, Sep 86 pp 27-28

[Article by Candidate of Economic Sciences N. A. Lebedkin (USSR Ministry of Coal Industry): "A New Approach to Traditional Schemes for Opening Up and Working Coal Reserves"]

[Text] As is known, the work of opening up and preparing underground mine floors with a view to constructing new coal mines there or of maintaining the capacity of existing enterprises is done on the basis of solidly established and adequately time-tested notions about the methods, procedure and technology for opening up and working mineral reserves. Schemes and methods for opening up and preparing mineral reserves have been approved for practically all the country's existing coal fields, taking into account the specifics of the coal seams' bedding. However, the scale of mine production achieved up to the present is great, it is close to its limit from the economic desirability aspect, and it requires further improvement of our knowledge and notions about more rational ways for opening up and working mineral reserves.

Up to the present, underground mine floors of explored coal fields are opened up and developed not to their full depth and length along the strike and across the strike immediately but by individual sections to depths that will enable coal to be mined from the section for 10-15 or, sometimes, 20 years. Then, as the opened-up reserves are worked, the cycle is repeated. Again, mine shafts are sunk (or existing ones deepened), and horizontal and sloped mine workings are driven for opening up and preparing new reserves with a view to working them off in about the same period, and horizon after horizon is driven successively until the reserves are fully worked. The designers determine the number of horizons for working the field, and the builders return the same number of times in order to open up and prepare the new horizons. Operations are started anew with the development of construction-industry sites and the erection of temporary buildings and structures, which are not needed at all for the enterprise's operation and which, in essence, are abandoned. Often, the continuity of the work of preparing a new horizon is comparable with the time spent working the preceding horizon, and the simultaneous execution of construction work and of mining operations is reflected negatively in the results of the work.

The question naturally arises, is it not possible right off to drive the main mine workings (shafts, crosscuts and trunk entries) for the whole depth of

the explored reserves of the field that is involved or has been involved in development, and also for the whole length of the strike and across the strike, after preparing excavation sections close to the central shafts for primary development with a view to simultaneously satisfying the national economy's requirements for coal and speeding up recoupment of the capital investment, without stopping, in so doing, capital work on preparations for the mastery of coal reserves that have been explored and that still remain unworked? This would permit construction organizations to concentrate their capacity at some priority jobs, to complete operations thereat in the shortest possible time, and to move to the next job without returning to the field, which is completely prepared for operation. The economic benefit from this is obvious and significant in volume and could be distributed in proportion to the labor participation of all who take part directly in the general matter of exploring for reserves, in the design of the mining enterprise thereat, and in building and operating it with the best technical and economic indicators.

Unfortunately, up until now neither the designers nor the construction organizations, nor, indeed, the clients, have raised questions about the procedure for immediately opening up and preparing coal fields throughout their entire extent and volume, with a maximum concentration at each of them of construction-organization forces and resources, about preparing the whole mine floor without interruptions in time, in order to work immediately at all horizons, and about the concept, in so doing, of the retreat procedure for working reserves throughout the whole mine floor with the filling of the mine workings that are left in the excavated space, including reserves that lie adjacent to the central shafts and that underlie the primary working, in order to cut the time for putting mines and horizons into operation. Indeed, the transfer was made in due time from the continuous system of development to long shafts along the strike, and then along the rise (the dip). Is it not now time to take still another step in this same direction but on a much greater scale, advancing the borders of the section being worked to the borders of the field, and converting to working the entire mine floor in the retreat procedure? For the whole economic effectiveness of this will be still greater than with transfer from the continuous system of development to long shafts along the strike, dip and rise. The answer to this question does not require extensive and lengthy scientific surveys and can only be unambiguous.

Many managerial and technical questions basic in nature or those connected with expenditures of large labor and material resources have been solved in recent times in small amounts--in advance--in the form of a management or an economic-management experiment. That is why also, in this case, no attempt is being made at even one mine to work out a design and to open up and do the capital development of the remaining reserves immediately in the full amount. It would seem to be completely desirable to choose one of the more promising mines with a view to working its reserves in shorter times and with the best of technical and economic indicators. A rise in the effectiveness of capital and current expenditures in this case will be guaranteed by a concentration of construction and of operating forces and resources, by stopping the frittering away of capital investment over numerous construction jobs--with a large amount of uncompleted construction, and by the entire logic of the managerial and technical development of the coal industry. It

is necessary to reconstruct radically the attitude toward key technical and economic-management problems. It is this which is a guarantee of success, undoubtedly also for the personnel who will be charged with solving such tasks during the new five-year plan.

An increase in coal-mining volume with a smaller number of mines that have high indicators is a consistent result of increasing intensification in labor-consuming and capital-intensive branches, among which are mining operations.

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FUELS

SALMANOV COMMENTS ON TYUMEN OIL EXPLORATION

Moscow PRAVDA in Russian 14 Jan 86 p 2

[Article by F. Salmanov, chief, Glavtyumengeologiya, doctor of geological and mineralogical sciences: "Shortage During a Surplus: Notice to Oil Producing Areas"]

[Text] The Western Siberia oil and gas complex plays a crucial role in the development of the industrial forces of the country. Appearing at a conference of the most active members of the party-economic organization, M.S. Gorbachev noted, "Tyumen is the main source of hydrocarbon raw material..." In order to maintain the rate of increase in oil and gas and to ensure uninterrupted growth in the level of their production, Tyumen geologists must drill 14 million meters of exploration and developmental wells in the five-year plan just started: more than double that of the previous plan.

It will not be easy to do this. Such an amount is not overcome by increasing crews. Only the introduction of new equipment, progressive technology, and innovative methods of organizing work will help exceed these higher limits.

Since the mid 1970's, Glavtyumengeologiya began the intensive re-equipment in seismic exploration with new means for detecting and processing materials. New digital seismic exploration stations have appeared. And in the past year all seismic exploration crews have already converted to digital detection of field materials. At the same time, computer centers began to be created in Tyumen, and then in Khanty-Mansiysk, Labytnangi, Tarko-Sale, Tazovskiy, and Novoagansk.

The amount of geophysical work in the Tyumen North in the 12th Five-Year Plan will triple or quadruple. This will require a new generation of computers for the processing centers. It will be necessary to create a computer center network in all geophysical expeditions and to equip them with the newest computers. To increase the effectiveness of seismic exploration research, as a minimum, we must increase the capacity of processing complexes 20- to 25-fold.

Calculations done at the ZapsibNIGNI institute show that the deep-Earth prospectors must map an area of nearly 5,000 deposits. To investigate them by drilling alone is unthinkable. The seismic prospectors must render urgent assistance to the drillers. Further equipping field geophysicists with new

types of computers would make it possible to conduct their business significantly faster.

At present, nature dictates the period for field geophysical work. Research on the seismic profiles can begin only after the rivers and swamps freeze. For the time being, we are powerless in the fight with nature. But converting all seismic teams to nonexplosive excitation sources can increase the duration of field work. There are a number of interesting proposals in this area. One of them belongs to our engineer-discoverer, the well-known Samotlor L. Kabayev.

This is why it is necessary to strengthen the ties between science and production: to make it more efficient. Annually, our central board allots vast sums to research and topical work. In this year alone over six million rubles will be spent for this purpose. It is very important that these resources are returned in material form as soon as possible.

The further intensification of geologic exploration requires its fundamental re-equipment based on modern science and technology. Mainly, it is necessary to accelerate the erection of drilling rigs. Currently, it takes nearly 24 days to erect one rig. And this is the average. There are completely different figures in the leading brigades. In the Obnfttegazgeologiya association, the crews of A. Kuchumov and G. Pirozhenko assemble drilling rigs in 11 to 12 days, and the crew of S. Kotunin manage this even faster. And yet each crew has the identical equipment. As well, they differ little from each other in the number of workers. The entire matter is one of work organization.

Accelerating the assembly periods depends primarily on the drilling rigs. The "Uralmash-1500" drilling rig and complex of technical equipment associated with it bored the deepest well in the world: the Kolskaya ultradeep well. This made it possible to solve major problems in the fields of equipment and technology of ultradeep drilling. Uralmash produces rigs for work in northern Tumanskaya oblast, similar to that which bored the hole in the Kolya peninsula. These rigs appeared in our sections last year.

Recently, those in the Urals significantly improved their production: the metal used in the was reduced and their capacity was increased. But even with this, all was not done by far. The rigs have a low assembly rate, the necessary mechanisms for carrying out the auxiliary operations have not been perfected, and they are not heated. The weight of the rigs produced by our industry is 1.7-fold greater than similar foreign rigs.

Such rigs can be moved to other locations only in winter. Not one well can be drilled by any of them during the period of forced idleness. As a rule, in summer and at the start of fall the drillers of the collective do not have enough of these idle rigs. And there you have it: a shortage during a surplus.

Transportation costs comprise up to 35 percent of all costs for drilling preparation. This problem can not be solved only by the efforts of the

geological enterprises. The efforts of many ministries and collectives of scientists must be applied to it. Its solution is radical -- the creation of all-terrain transport, not disrupting the "fragile", long-recuperating plant cover.

It requires fuller use of one more potential. In recent years, the drilling rate per central board is growing. In the Obnueftegazgeologiya association, for example, the crew of V. Solov'yev drills 30,000 meters a year, on the average. And other skilled workers are successfully competing with him.

A reduction of the gap in the results of the leading and average crews is an important reserve. There are two ways to achieve this. First, it is necessary to eliminate the idle times associated with the ill-timed supply of materials to the crews, poor quality assembly of rigs, and equipment and technological miscalculations. Then, it is necessary to more actively re-equip the crews based on scientific and technical progress and to provide them with the newest types of bits, turbodrills, and pumps.

And it is necessary to increase the drilling right now. That means it is not necessary to wait until the designers give us new equipment, but to effectively use what we have. In Surgut, I became acquainted with a local innovation; its essence is simple: they added central jet nozzles to industrial drill bits. Such nozzles are produced by the Surgut Industrial base. They increased the rock-destroying properties of the bits by 20 to 30 percent. These "domestic" improvements, of course, do not solve all the problems.

Sometimes the plants improve machines and mechanisms unnecessarily. For example, the 886-MA2 mud pump has several modifications that do not significantly affect its operational indices and specifications. The variations differ in rod diameter, shape of the cylinder liners, size of seals, etc. The effect of such modifications is zero, except for the additional difficulties with weight. If only the authors of such "improvements" only knew how much trouble they have introduced to the work of drilling crews. Just try to maintain the normal supply of pumps as spare parts with such different designs of principally one and the same machine.

Each section of Tyumen geologists is doing much to improve the effectiveness of geological exploration. Nearly 2,500 workers of Glavtyumengeologiya are taking part in the scientific and technical creative genius. They introduce thousands of proposals each year, the majority of which are put into production.

The problems and tasks set before the oilmen of the oblast have to be solved immediately. We are confident that they will be successfully realized. It is precisely this that made it possible for the Glavtyumengeologiya collective to accept the high socialist obligations to accelerate scientific and technical progress and increase the effectiveness of the industry in the 12th five-year plan.

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FUELS

ARKHANGELSK OIL, GAS SOURCES EXAMINED

Moscow SOVETSKAYA ROSSIYA in Russian 22 Jan 86 p 1

[Article by Yu. Rossikhin, general manager, Arkhangelskgeologiya production association: "Arkhangelsk Treasures"]

[Text] In planning the Basic Directions, the need to further buildup the Timano-Pechorskiy regional production complex was commented on. Even personnel from our association actively participated in fulfilling this task. In the past five-year plan, the assignment to prepare reserves of oil, condensate, and gas was significantly exceeded. Last year we achieved the greatest growth in labor productivity and volume. The overall results were that ten new deposits were discovered. In the Naryav-Mar region, even today, it is possible to extract at least 15 million cubic meters of gas.

Last year in Arkhangelsk, the first thousand tons of arctic oil was delivered by water. The necessary raw materials base for the development of the oil and gas industry was created in the Nenets Autonomous Okrug. Recovery can expand in three rayons: Severo-Kolvinskiy, Varanday-Adzvinskiy, and Yuzhno-Shapkinskiy. Although the enterprises of Minneftprom [Ministry of the Petroleum Industry] are beginning, albeit slowly, to develop the deposits, no activity at all is being shown in Mingazprom [Ministry of the Gas Industry]. Moreover, if one keeps in mind the economic interests of the State, the gas and oil bearing regions of the Arkhangelskaya oblast must be developed faster than those in Western Siberia. The consideration is this: they are located much closer to the industrial centers of the country than those discovered in Tyumen.

The land of Arkhangelsk has enormous raw material resources available. We have only just begun to discover its natural riches. We have only slightly studied Timan, Pay-Khoy, Novaya Zemlya, and the oil and gas bearing regions of the Khoreyverskaya, Korotaikhinskaya, and Mezenskaya basins. But we have already made interesting discoveries. For example, one of the largest group of bauxite deposits--the Severo-Onezhskiy group--has already been explored. Scientific and technical developments indicate that the identified reserves can become the basis for creating the Plesetsko-Savinskiy industrial region. In addition to the Onezhskiy bauxite mine, it would be expedient to include the aluminum plant and vast metallurgical complex. Unfortunately, many of the geologists' discoveries, in my opinion, are not properly reflected in the plan of the Basic Directions. I consider it necessary to enter the following

into the plan: "TO BEGIN BUILDING UP THE NORTHERN TERRITORIAL-INDUSTRIAL COMPLEX AS A PART OF THE ARKHANGELSKAYA AND MURMANSKAYA OBLASTS AND THE KOMI ASSR BASED ON THE IDENTIFIED RESOURCES OF OIL, GAS, COAL, BAUXITE, SHALE, AND OTHER MINERALS, AS WELL AS LUMBER AND OTHER RESOURCES". In perspective, such a TPK [territorial-industrial complex] can become the most important fuel-energy and mining region in the country. I am convinced that with the correct planning, based on the above, the integrated development of all the area's natural resources can be accomplished in the near future with minimum material, labor, and financing costs. Arkhangelsk and other large cities of the oblast are right next door.

In the current five-year plan we have been allocated over 1.5 billion rubles to increase exploration for solid minerals 1.8-fold. We would like the headquarters of the industry to provide material assistance.

The complicating disproportion between the amounts of geological exploration operations and the material and equipment supply hinders this matter. The ministry, for example, does not issue us all-terrain equipment. Just how can we get around without it in the tundra? The association's requirement for construction materials is only 40 percent satisfied. We receive cargo delivered by the Northern water route on the shore ice. Meanwhile, in Drevyansk, Varande, Kalguyev, and Sinkinly Nos ports can be created for combined rail and water traffic.

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SHIRVAN OIL WORKERS CALL FOR MORE, BETTER EQUIPMENT

Baku VYSHKA in Russian 11 Feb 86 p 2

[Article by S. Garayev, VYSHKA staff correspondent: "More Oil for the Homeland: Do Not Repeat Mistakes"]

[Text] Today, industrial facilities of the NGDU Shirvanneft (Shirvanneft Oil and Gas Production Department) extend from the lower part of the Kura to the foothills of the Caucasus. Thirty years have passed since the oil flow was obtained from the first well drilled in the Central Kyurovdag area, and soon the ten year anniversary of the discovery of the new hydrocarbon deposit—Kalamaddin, located among the jagged rocks of the Lengabizskiy mountains—will be realized. The Shirvan producers will soon note yet another noteworthy event: the 35-millionth ton of oil will be extracted since the day operations were begun in the deposits of the Prikurinskaya lowlands. With such an uplifted mood, the oil workers of Shirvan have begun fulfilling the tasks of the new 12th Five-Year Plan.

It was not by chance that we began our story about the oil workers of the second department from the work of the production maintenance brigade. It is precisely these maintenance men who must play a crucial role today in the struggle to stabilize, and then to increase, the extraction of oil here, in the old Kyurovdag deposit. In the first half of the year, the operators are not waiting on the drillers of new wells. Indeed, all hopes are on operating wells, the majority of which have been "working" for 15 to 20 years already. All of them are rather worked out, therefore the main emphasis is on taking various geological and technical measures to increase the withdrawal of fuel. It is here that the role of the maintenance men is especially important.

Over two ten-day periods in January, 33 geological and technical measures were implemented, which made it possible to obtain an additional 300 tons of oil. For example, after reperforating the filters of three wells, a rate of three additional tons began to be obtained. Especially good results were obtained at well No. 1219, where the critical zone was strengthened. This added four tons of fuel to the daily "production". After the oxygen treatment of the critical zone the oil production rate at three more wells grew, etc.

The phrase "Exchange or Replace the Pump" is most often encountered in the industrial journal. On only January 23, when we were in the field, four production maintenance crews were engaged in such work.

"This is not because of the good life," explained one field man. "The quality of the pumps produced at the plant imeni F. Dzerzhinskiy is not beneath criticism. A brand new pump is lowered into the well, and after one or two days it has to be replaced. They break down quickly."

Very recently well No. 904 underwent repairs twice in one week because of defects found in the pumps. There is no test stand in the field, so for all practical purposes they are tested under operational conditions. All of this takes time, which destroys the preventative maintenance plan and reduces the period between overhauls for the wells.

Last year the Shirvan oil men were thousands of tons of fuel in debt to the country because of deficiencies of this nature and other deficiencies, and there proved to be a gap.

However, this was not the only matter. The low efficiency of work performed to intensify extraction has drawn attention. For example, last year in gas and oil production department No. 1, instead of 16 new wells, 20 were put into operation, and in department No. 2, with an assignment of 12, 13 were put into operation, but nevertheless, there was a shortfall of nearly 7,000 tons of liquid fuel in overall production from the new wells.

These data provide the reason to confirm that in Shirvanneft the geological engineering work is still poorly organized, and the sites that were selected for the drilling of new wells were, in a number of cases, insufficiently thought out. Otherwise, how can we explain the fact that in 1985 we planned to obtain 62.6 thousand tons of oil from the new wells, but only a little more than half that amount was obtained.

Or, to produce oil by restoring the wells from idle status. With a plan of four "second life" wells, in total, the NGDU last year obtained eight wells. Logically, the production of oil should have been double. However, the opposite was true: instead of the planned 2,554 tons of oil, only 2,000 tons--or 78.4 percent--were extracted from the depths.

At the end of the five-year plan, the Shirvan producers were short a great amount of oil from the transitional wells: indeed, more than 94,000 tons. It goes without saying that the operating funds in the NGDU were not maintained in good condition. Judging by official data, last year in the administration there were 1,792 different geological and technical measures implemented, through which an additional 141,300 additional tons of oil were obtained. At first glance, this indicator is not bad. However, in comparison with 1984, the yield from work performed decreased by about 7.3 percent for geological measures and 2 percent for technical measures, although they were 47 and 72 items greater, respectively.

The effectiveness of measures in the first gas and oil production department were especially low. Here, nearly 40 percent appeared to be without results. In other words, in 205 cases the efforts of the brigade for overhaul and production maintenance of wells were expended for nothing. And this is at a time when the NGDU Shirvanneft, on the whole, had 8 to 10 oil-producing wells standing idle daily, pending maintenance.

"That's the way it is now, but last year it was even greater," notes the chief of the central engineering and technical service, Yusif Guliyev.

The plan for the first month of the initial year of the new five-year plan for the Shirvan oilmen, producing nearly 25 percent of the oil of the Azneft association, was over-fulfilled. But it should be frankly stated that the work pace could have been higher if the neglect and mistakes of the previous year had not been repeated.

On January 19, almost all of the wells of the second field stopped for about four hours. The reason: a disconnection of electricity. And how much time was spent to restore operations of the wells!

On January 22, the repair brigade of foreman R. Guliyev waited ten hours for a Bakinets hoist unit to be returned from repair. Three more units, serial numbers 56-71, 56-83, and 56-95, had already been in repair for nearly six months.

It was the same with the mobile steam units. Of 14 PPU-2 units in the NGDU, only half worked. The need for them, especially in these winter days, is very acute.

The shortage of high-quality pumping units and spare parts for them, oil well tubing, submersible electric pumps and subsurface pumps, difficulties with repair of electric motors, etc. should also be included here. Much has been said and written about all this. Unfortunately, at the present time matters concerning this dead point have not budged. But, someday...

The Shirvan oil workers are determined to work with full resolve for complete extraction, to give the Motherland as much more oil as possible. But they need help. They are awaiting this help both from the Azneft association, as well as from the subcontractors called upon to supply the oil workers with everything necessary for highly productive labor.

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BRIEFS

EXCESS OIL FROM SURGUT--The collective of the Surgutneftegaz association has met the basic pre-congress commitment: to manage the annual task in supplying "black gold" ahead of time. Hundreds of thousands of tons of the valuable raw material above the plan have been supplied to the national economy. The country will still receive nearly 50,000 tons in above-plan oil from the Surgut producers in the remaining days of December. The greatest contribution belongs to the specialists of the Fedorovskiy production association. One of the reasons for the producers' success is the systematic placement into production of new deposits. One of them, the Alekhinskoye, was connected to the supply system and began operating literally in days. In the first year of the 12th Five-Year Plan, the oil flow from here is reaching full intensity. ["Surgut Oil", by Yu. Perepletkin, IZVESTIYA staff correspondent] [Text] [Moscow IZVESTIYA in Russian 20 Dec 85 p 1] 12304

PROGRESSIVE MANAGEMENT FOR MORE OIL--Nebit-Dag, 2 [Feb]--For the first time since the beginning of the year, 8,000 tons of oil and 20 million cubic meters of gas above the plan have been extracted by the collective of the Turkmenneft production association. The instigators of the pre-congress competition--the oil and gas producers of the Nebitdagneft Administration imeni 50th Anniversary of the USSR--made the weightiest contribution. They better exploited the deposits at Barsa-Gelmes, Koturdepe, Kum-Dag, Gograndag, and Erdekli; they introduced progressive types of management; stimulated labor in the brigades; and introduced effective extraction methods. The Turkmen oil workers revised their socialist obligations. In 1986, it was outlined to produce 125,000 tons of oil above the plan (double the earlier adopted obligation) and 200 million cubic meters of gas (nearly fourfold greater than previously predicted). Special attention will be paid to stabilizing the extraction of the hydrocarbon raw material at old deposits and increasing extraction in the Kamyshlydzhaneft administration. ["The Wilderness Endows Whom", by A. Yezerskiy, PRAVDA staff correspondent] [Text] [Moscow PRAVDA in Russian 3 Feb 86 p1] 12304

TARTARS EXCEED PLAN--Almetyevsk--For the entire month of December, the producers of the Tatneft Order of Lenin Production Association will extract liquid fuel above the plan of the 11th Five-Year Plan. The month-long, above-plan production was achieved as a result of the widespread use of modern extraction methods and the constant search for ways to increase the oil production of the formations. The Tartar producers will extract more than 4.1 million tons of oil during this time frame. Among the sections in

the association, the collective of the Dzhaililneft administration provided the greatest increase to the five-year plan: over 572,000 tons. ["A Month Early", by A. Mannanov] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 11 Dec 85 p 1] 12304

GAS BEFORE FULL PRODUCTION--Nebit-dag--The Korpedzhe gas deposit in western Turkmeniya began to operate long before its celebrated placement into production. After the first exploratory well was drilled it was connected to the Central Asia-Tsentr pipeline. "One and a half million cubic meters of fuel a day, such was the rate," said P. Polyubay, chief engineer of the Turkmenneft association. "We decided not to wait for the completion of construction of the deposit or drilling of other shafts. Here, in essence, we used the method of accelerated involvement of the deposits under development, when the stages of exploration, projection, and experimental operation are combined. Pipelines were previously laid to the drilling rigs operating at Korpedzhe, so that when the wells were drilled they could be quickly switched into operation." The exploitation of the neighboring Bugdayli deposit is ongoing. At first, the gas from these two stores will go via the pipeline network to the headworks of the producing Kamyshlydzh gas and oil deposits, and then to the Central Asia-Tsentr pipeline. ["Mainspring of Acceleration", by Yu. Shakhnazarov] [Excerpt] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Nov 85 p 1] 12304

NEW FIND IN YAMAL--Kharasavey, 2 [Jan] (Tass)--A new gas deposit, the Malyginskoye, was put on the geological map of Western Siberia. It was identified in the northern part of the Yamal peninsula. This discovery once again confirmed that the peninsula is rightfully considered one of the most promising. Currently, there already number ten deposits of oil, gas, and gas condensate. Work has begun on organizing the extraction of the natural gas. ["Yamal is not Growing Scanty"] [Text] [Moscow PRAVDA in Russian 3 Jan 86 p 1] 12304

OIL DISCOVERED AT KURSANGYA--Salyany, 1 Aug--A commercial inflow of oil was obtained after the completion of exploratory well No. 487 at the Kyursangya deposit. The well, drilled by a collective of the drilling brigade of foreman G. Suleymanov of the Kyursanginskiy UBR [drilling department], with a daily flow rate of 70 tons of liquid fuel and over 30,000 cubic meters of gas, was accepted into the reserves of the first field of the Salyanyneft NGDU [oil and gas production department]. Its significance lies in the fact that it was discovered in a heretofore unstudied, new oil and gas bearing formation in the Yuzhnaya Kyursangya region. ["New Oil Deposit", by S. Garayev, VYSHKA staff correspondent] [Excerpt] [Baku VYSHKA in Russian 2 Aug 85 p 1] 12304

RADIAL CONSTRUCTION USED--The climate in Yamburg is severe. Bitter frost, hurricane winds that knock you off your feet, not enough oxygen in the air: all of this makes construction at the northernmost gas condensate deposit of the country difficult. But climate is climate, and work is work. And even the most fierce winds and frost at Yamburg is working weather. The plan for construction of the deposit hangs in the office of the general director of the Yamburggazdobycha association, S. Pashin. He decided to adopt the so-

called radial method. The facilities of the gas treatment complex were erected here not in line, as at other deposits, but in a circle. This was dictated by geological features, and the similar compactness served the purposes of the builders. One of the installations, UKPG-2, is the center of attention today. It must be the first to send gas from the Arctic region to the interior of the country. Those participating in the construction resolved to place it in an operating condition not at the end of the year, as planned, but in the third quarter. "The secret is simple," explained the chief engineer for PMK-13 of the Sibkomplektmontazh association, B. Richchio. "We are building by the modular method, which helps to sharply reduce labor expenditures." "We could even accelerate the pace of construction," considers [team leader] V. Gumenyuk, "but the system for installing the piles has not been completed yet. At present, we are filling a drilled well with a concrete mixture. With such frost there is a problem to prepare it. In fact, the concrete mixers that are supplied are unsuitable for the North: the mixture in them freezes instantly. We are now trying a method of steam curing. With its introduction, the preparation of foundations will considerably accelerate and costs will drop by one-third. ["Working Weather in Yamburg: From the Site", by V. Kotov] [Excerpt] [Moscow PRAVDA 19 Jan 86 p 2] 12304

WELL NO. 117--Baku--In the area imeni 28 April an oil flow at a rate of 300 tons was obtained from well No. 117, drilled from sea platform No. 3 by the brigade of foremen Gilal Nazarov and Sakhavat Imanov, of the MURB Bukhto Ilich. This is the second well this year whose construction was completed by the deep-earth drillers with a savings in material resources and time. The drilling speed for seven months of this year increased by 33.2 percent above the plan, comprising 637 meters per rig per month. Among the obligations adopted, 1,370 meters of rock were drilled; this means that the brigade is already close to fulfilling its annual assignment. The section of oil and gas production foreman Ali Babayev, whose collective took part in completing No. 117, was scheduled to place a new well into operation this month. And now, at the deposit imeni 23 April, 23 high-output wells are operating, yielding over 9,000 tons of oil a day. ["Another Oil Flow", by V. Gol'tsev] [Excerpt] [Baku VYSHKA in Russian 3 Aug 85 p 1] 12304

BAKU PLANT FINED--The Baku Machine Building Plant imeni G. K. Petrov broke its contracts and did not supply the organizations of the USSR Mingeo [Ministry of Geology] with tens of derricks and drilling rig platforms. The plan for supplying the enterprises was not fulfilled for the entire preceding year. Recently, the USSR Gosarbitrazh [State Board of Arbitration] upheld the suit of the Moscow special administration of Soyuzgeosnab and recovered 70,767 rubles and 20 kopeks from the Baku Machine Building Plant for non-supply of equipment in the first and second quarters of last year. An additional 10,000 rubles was recovered for the national budget for lack of discipline in fulfilling contracts. Upon examination of this matter the following was revealed: year in and year out the plant systematically did not fulfill contracts to supply derricks and platforms. For example, in the first and second quarters of 1985, the enterprise did not supply geological exploration organizations with 28 derricks and 14 platforms. Mingeo is currently preparing a suit for nonsupply of equipment by the plant imeni G.

K. Petrov in the third and fourth quarters of last year. ["Fact from the Record: Baku Machine Building Plant Tore Up Supply Plan", by G. Alimov] [Excerpt] [Moscow IZVESTIYA in Russian 11 Jan 86 p 2] 12304

PIPELINE ACROSS VOLGA LAID--Zvenigovo--The main siphon for the Yamburg-Yelets-1 gas pipeline across the Volga has been completed. A larger diameter pipeline of 1,420 mm was laid in a trench on the bottom, which together with the overload will carry nearly 6,000 tons. In all, the brigade of A. Simvolokov required 15 days to force a crossing in the heavy ice conditions and sharply fluctuating temperatures. Yet another, the seventh crossing of the Volga for the five-year plan, confirmed the high class of construction of fuel arteries. Following testing of the underwater crossing, it will be transferred to the operators. And the brigade of A. Simvolokov is preparing for a new rush, from the left bank to the right. The erectors have resolved to lay the next siphon on the bottom of the Volga before spring: for the Yamburg-Yelets-2 gas pipeline. ["Rush Across the Volga"] [Text] [Moscow SELSKAYA ZHIZN in Russian 12 Dec 85 p 1] 12304

COMPRESSOR STATIONS ON LINE--The Mozhgiask compressor station, placed into service ahead of schedule, has increased the gas flow to the Udmurtsk segment of the Urengoy-Tsentr-2 pipeline. The compressor station which was placed into service on the Severo-Soleninsk-Messoyakha-Norilsk pipeline will provide a reliable gas supply to the cities and enterprises of the Arctic region. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 2, Jan 86 p 3] 12304

PIPELINE OPENED--The new Tedzhen-Ashkhabad-Bezmein gas pipeline, nearly 300 kilometers long, has been placed in operation. This will make it possible to reliably provide Ashkhabad and the near-by populated areas with natural fuel. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 47, Nov 85 p 3] 12304

PRODUCTION BEGUN AT NOVOPORTOVSKIY--In the north of Tumanskaya oblast, across the Arctic Circle on the Yamal peninsula, pilot production has begun at the Novoportovskoye oil and gas condensate deposit. If we look at the map of Western Siberia, beyond the Arctic Circle we will see a broad blue corridor stretching from north to south. This is the Ob, spreading for hundreds of kilometers; it has become like an ocean. Its mouth is even called the Gulf of Ob. On its right shore is Yamburg, and on its left at the same latitude is the settlement of Novyy Port. Not far away, geologists found a deposit and named it the Novoportovskoye deposit. The settlement of Yamalsk, of oil workers and construction workers, is not far from Novyy Port. It is still not on the map. It is under construction. Several well-built dormitories already stand in a row. Work is being concluded on the construction of a sport complex, and they are erecting a bakery, laundry, bank... In a word, a modern workers settlement. The deposit itself is located just beside Yamalsk. In perspective, it is proposed that the workers will live here and get to work in trucks. But for the time being, it is possible to get to the pilot production segment, where oil extraction in arctic conditions is being studied, only by all-terrain vehicle. ["Yamal Oil", by A Trutnev] [Excerpt] [Moscow KRASNAYA ZVEZDA in Russian 25 Jan 86 p 6] 12304

OIL EXTRACTED FROM 900 METERS--(AZERINFORM)--The need to construct a new compressor station for the field men of the pile-supported settlement in the Caspian, Neftyanyye Kamni, has passed. A new method of operating the gas-lift wells was introduced here, which makes it possible to increase the depth at which the gas is extracted without additional pressure on the strata. When there is a lack of outflow, the oil men extract the raw material from the strata using the so-called gas lift, where gas pumped into the depths forces the oil to the surface. The power of the compressor station operating on the pilework provided the capability to extract the valuable raw material from depths of not greater than 300 meters. And after these strata are exhausted the wells are shut down. Now, even the 900-meter depth can not conceal the oil reserves from the Caspian oil men. "The essence of the new method lies in the fact that not one gas-lift pipe is lowered into the shaft, but several, each of which is 300 meters longer than the other," tells one of the authors of the innovation, Kerim Kerimov, outstanding innovator of the republic, chief of shop No. 8 of the "Neftyanyye Kamni" NGDU. "Then gas under pressure is fed into all pipes simultaneously. The oil, as if in a relay race, goes from pipe to pipe and in such a way is extracted from the well." ["'Black Gold' of the Great Depths"] [Excerpt] [Baku VYSHKA in Russian 25 Jan 86 p 1]

DRILLING STALLED BY HELICOPTERS----Tyumen--I have been shown the monthly plan for drilling and accrued flight time for the helicopters. The drillers call for help, but the aviators don't give a hoot, having greatly exceeded their plan. The "enigma" does not appear to be very wise. The plan for helicopter transportation is substantially less than the needs of the geologists. The pilots deal with them quickly enough, mainly in the favorable summer months, and therefore the final months of the year are worked mainly on the principle of "When I want to fly, I fly. When I don't, I won't". The geologists have to "grovel" before the fliers. Indeed, the lack of transportation is fraught with arrhythmia and failed assignments, like last winter. It would appear that everything is clear: without an increase in the amount of air transportation, and without the efficient operation of the air transport according to plan, the assigned tasks will not be fulfilled. Nevertheless, these oil workers, for whom many "small roadways" have been built and a railroad constructed, still prefer--often without need--to use the helicopters, taking away resources from the geologists. Thus, exploration is impeded. They are hurting themselves... In 1986, drillers of Glavtyumengeologiya had to increase the amount of drilling by nearly 15 percent, and double it by the end of the five-year plan. In accordance with this, the managers of the central board placed an order for the helicopters. But it was reduced to 80,000 hours. At the same time, the limit allocated to 1986 is 37,000 hours less than the actual flight time in the previous year. They say that the requests of the oil workers, gas workers, and builders are not fully satisfied. But who checked how valid they are? The deputy director of the civil aviation administration V. I. Khritokhin left this question unanswered. "The problem, indeed, exists," said the chairman of the West-Siberian Interdepartmental Territorial Commission to the USSR Gosplan Ye. N. Altunin. "The difficulty is that there are no norms for helicopter use by this or any other

organization. It is difficult to develop them because of the varying weather conditions and climatic zones in Tyumenskaya oblast. Therefore, at present, many have resorted to emotion. But I agree that we must find the capability to better provide the geologists with helicopters and to more fairly distribute our resources." ["Who Need Helicopters More", by V. Pavlenko, TRUD correspondent] [Excerpt] [Moscow TRUD in Russian 9 Jan 86 p 1] 12304

NEW IDEAS ON ORIGIN OF OIL--The traditional ideas of scientists and specialists on the origin of oil were swung by its flow, struck from the new well in Sumskaya oblast. It was obtained from ancient crystalline rocks, and not from the later residues that were previously considered the sole origin of "black gold". "Scientific controversy over the origin of oil have continued for over a century," said the director of a department of the Institute of Geological Sciences of the UkSSR Academy of Sciences, I. I. Chebanenko. Some researchers maintain that this mineral deposit was formed from the remains of living organisms. The "inorganics", on the other hand, are sure that it is the result of the action of a gigantic chemical reactor in the depths of the Earth." On the side of the today-prevailing organic school are the discoveries of large deposits in the sedimentary crust, which were formed after the emergence of life on the Earth. However, similar findings have not yet been predicted, and this compels us to listen to the opinion of the "inorganics" more carefully. Recently, they have come up with a number of persuasive arguments in favor of their point of view. Representatives of this direction believe sedimentary rocks are not the point of formation of oil, but only a convenient reservoir for the accumulation of hydrocarbons continuously rising from the depths of the Earth. The entire matter rests on learning to search for such "vessels" in the strata of the crystalline platform. The specialists of the Ukrneft association, who had already been engaged for several years in the search for "nontraditional" deposits, were the first to make such an attempt. They obtained a flow from the crystalline shield in the Sumskaya oblast in the area which, in its time, was acknowledged to be without promise. I. I. Chebanenko recalled that four years ago a flow of such a deposit was struck on the Mangyshlyak peninsula. At that time, they hurried to announce this chance happening: they say the oil "oozed" upward from the sedimentary rock. The technical features of the Sumskiy well exclude such a possibility. The scientists and deep-earth prospectors continue to search for the governing laws of the occurrence of such deposits. It has not been ruled out that the results of these explorations will force us to reexamine the ideas about the oil reserves on our planet and the forecast of the relative periods of their impoverishment. [In the World of Scientific Ideas: Correction to 'Geneological' Oil?", by Yu. Makarov] [Text] [Kiev PRAVDA UKRAINY in Russian 24 Sep 85 p 2] 12304

BAKU PLATFORM CONSTRUCTION DELAYS--Laborers of the Baku plant for deepwater offshore platforms had the opportunity to build three oil platforms simultaneously. The building berth with assembly area and the lighting tower, which will make it possible to work in the evening and at night, have gone into production. The berth is the main object of the third production complex of the enterprise, on whose successful operation the results of the labor of the offshore oilmen, making an erection in the current five-year plan for the fastest development of deposits lying below the floor of the

Caspian, in many respects depend. Among the new buildings of the plant adopted by the state commission are deck shops, where the assembly of superstructures of the steel islands, water lines, and the communication network has already begun. "However, the time frame to put such objects into production had to be carried over to the current year," said the director of the enterprise, Tair Mamedov. "The builders were not able to complete the construction of one more berth with assembly area and two lighting towers, a paint shop, refueling station, garage, heated vehicle barn, and auxiliary buildings. And this means that the output of our plant will be held to half capacity. Builders of the republic Minpromstroy [Ministry of the Construction Industry] trust No. 7 tolerated a basic delay in the beginning of the past year. When construction became feverish there was not a full compliment of personnel or materials, and the work was poorly organized. Then the situation began to get straightened out. Integrated brigades working on a single order appeared. They succeeded, in many respects, in shortening the delay, and in a number of objects even to overtake the schedule. Nevertheless, a portion of the objects remained uncompleted." ["New Capacities of the Island Plant"] [Excerpt] [Baku VYSHKA in Russian 10 Jan 86 p 1] 12304

DEEP DRILLING IN CASPIAN--The deep-earth drillers began the new year at the new well with a "Shel'f-2" floating drilling rig. This well was unusual. Below the pontoons of the platform were 180 meters of water. Exploration for hydrocarbon minerals had still not been conducted at these depths of the Caspian, and it remains for the drillers to try out the newest domestic equipment under complicated conditions. The elements must undergo testing not only to support equipment, but also people, conquering the ever newer depths of the sea. In the past year, the crew of the Shel'f-2, headed by the skilled engineer Nuretdin Kerimovyy, successfully passed a difficult test. The first well drilled from a moveable rig gave notice of the discovery of a new deposit of hydrocarbon. The name of the drilling foreman, Mikhail Kaverochin, the first discoverer of deep-Caspian oil, was conferred upon it. The Shel'f laborers then took a step forward along the Apsheronskiy plate, the underwater bridge between Neftyanyye Kamni and the eastern shore of the Caspian, in which the geophysicists discovered structures favorable for the occurrence of hydrocarbons. The modern "Shel'f-2" well is the second step along this bridge toward the Turkmen oilmen. But the water depth is now 60 meters greater than it was when drilling the first shaft. ["At a Record Depth of the Caspian", by A. Gol'denberg, Azerinform correspondent] [Excerpt] [Baku VYSHKA in Russian 4 Jan 86 p 1] 12304

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PIPELINE CONSTRUCTION, OPERATION

CALL FOR GREATER HOUSING CONSTRUCTION IN ENERGY SECTOR

Moscow STROITELSTVO TRUBOPROVODOV in Russian No 7, Jul 86 p 1

[Article in the periodical PIPELINE CONSTRUCTION: "More Attention to Housing Construction"]

[Text] In order to ensure the increment in the extraction of oil and gas in the country planned for the Twelfth Five-Year Plan, organizations of the Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] must increase the volume of construction and installation jobs by more than 30% in comparison with what was achieved during the Eleventh Five-Year Plan, to develop industry in the new northern regions of Western Siberia, the Caspian lowland and Western Kazakhstan, and to build trunk pipelines to the regions of oil and gas consumption. Moreover, housing construction remains to be one of the important directions of the activities of the ministry. The program for the construction of housing and cultural and public amenities will also expand considerably during the Twelfth Five-Year Plan.

During 1981-1985, about nine million m² of housing, preschool children institutions for 52,000 children and general-education schools for 80,000 students were completed. For the industry workers, about 3.5 million m² of housing, kindergartens for 15,000 children, sanatoriums-dispensaries for 410 people and pioneer camps for almost 700 children were build.

In 1986, 1990, it is planned to build and deliver for occupancy residential buildings of a total area of 12.6 million m² (7.6 million m² of them in Western Siberia), preschool children institutions for 100,000 children and general-education schools for 122,000 students (including those in Western Siberia for 70,000 and 77,000 students, respectively). It is planned to bring the availability of preschool children institutions for the industry's workers to 100% by the end of 1990.

In order to complete the increasing volumes of housing construction, it is necessary to increase the capacities of the enterprises of large-panel housing construction [KPD]. They must reach two million m² in 1990 (against 1.25 million m² at the beginning of 1986). Special measures have been planned for improving the work of the existing large-panel housing construction enterprises. Their realization will make it possible to increase the utilization coefficient of KPD capacities from 0.7 in 1985 to 0.9 in 1990.

Provisions are made to develop capacities for the production of parts of fully prefabricated buildings for social amenities. By 1990, the percentage of such structures must be brought to 60% of the total volume.

In 1986-1988, larger members will be introduced at house-building combines, which will make it possible to reduce the number of installation operations and, consequently, the construction length of buildings. In 1987-1988, it is planned to switch house-building enterprises to the production of parts of residential buildings of corrected series.

Provisions are also made for further introduction of industrial methods of finishing jobs and the use of new effective materials in housing construction.

The analysis of the state of affairs in housing construction shows that not all main administrations have been giving proper attention to this problem.

This year, the situation with the introduction of general-education schools, professional technical schools and preschool children institutions is unsatisfactory.

Jobs on the construction of schools by Glavtyumenneftegazstroy, Glavbashneftegazstroy and Glavtatneftegasstroy are not progressing smoothly. However, these administrations are responsible for one half of the programs of the ministry for the construction of general-education schools. Industrial trade schools are constructed very slowly. There are delays in the completion of jobs by subdivisions of Glavzapsibzhilstroy and Glavbashneftegazstroy. The pace of the construction of preschool children institutions is particularly alarming. Great delays are in the construction of kindergartens by Glavtatneftegazstroy, Glavbashneftegazstroy, Glavneftegazpromstroy and Glavurengoygazstroy.

The situation with the construction of housing facilities is somewhat better. Here, prerequisites have been created for the fulfillment of 40% of the year's program in six months. However, the pace of the completion of housing facilities is not smooth everywhere. Insufficient attention is given to the quality of construction. The available experience in finishing apartments according to the orders of new settlers is not disseminated.

Administrators of a number of main administrations, associations and trusts do not show any activity in searching additional reserves for exceeding the volume of housing construction planned for 1986 and the five-year plan.

The shortcomings in the housing and public construction were examined at the regular meeting of the Board of Minneftegazstroy. Ways of eliminating them were determined. It was noted that the administrators of main administrations, associations and trusts must radically change their attitude to the construction of housing and buildings for social and cultural purposes and amenities, considering it an important part of work and not as a matter of secondary importance.

In the housing and public construction, it is necessary to strengthen discipline, exercise a more rigid control and enhance responsibility for the fulfillment of planned tasks. Effective measures must be taken for improving the maintenance of the available housing facilities.

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DEVELOPMENT OF YAMAL PENINSULA DISCUSSED

Moscow STROITELSTVO TRUBOPROVODOV in Russian No 7, Jul 86 pp 4-7

[Article by O. M. Ivantsov, Ministry of Construction of Petroleum and Gas Industry Enterprises: "Yamal Horizons"]

[Text] In January 1986, Mingazprom [Ministry of the Gas Industry] held a scientific and industrial conference on integrated development of hydrocarbon deposits of the Yamal Peninsula. Later, a scientific and technical council was held on the construction of a gas-transfer system for delivering gas from the Yamal fields to the western regions, the center of the country and further, to Uzhgorod. A large group of specialists and scientists participated in the conference and the meetings of the council, and almost all basic problems of the Yamal Peninsula, whose fields have to be developed very shortly, were discussed.

In 1991, the first billions of cubic meters of the Yamal gas must be delivered to consumers. The region for the development of the fields and laying pipelines is extremely difficult. The conditions there are at least by one order more complicated than anything that had to be encountered to this time. The deadlines for their development are short, and everything that was reported was, so far, only the searching for organizational and technical solutions. The many variants of studies do not at all indicate any approach to an optimal solution.

In this connection, I would like to present individual considerations on the fundamental problems of the development of the fields there and construction of a gas-transfer system.

Of course, the starting point is the accumulated domestic and foreign experience in the construction of gas and oil facilities in subarctic and arctic regions, as well as the achievements of science and technology of the end of the twentieth century. It should be remembered also that Yamal will serve people for many years in the next century.

The Yamal Peninsula is a single oil and gas province. The deposits of gas, condensate and oil have already been determined on the peninsula, but their prospecting is continuing. The bulk of the explored deposits of gas are concentrated in two fields: Bovanenkovskoye and Kharasaveyskoye.

In order to understand the difficulties to be encountered in the development of the fields and laying trunk pipelines, let us briefly describe the natural, climatic, engineering and geological conditions of the regions of the main deposits and future routes of trunk pipelines.

The average annual air temperature at the Yamal Peninsula is -9.88 degrees C, and the lowest temperature is -54 degrees C. Winter lasts there for 6.5-7.5 months. The average length of the frost-free period reaches two months, and the peninsula is covered by snow 250 days. Strong winds blow for 80-120 days, and the velocity of hurricane winds is 40 m/s. There is daylight around the clock from May to August, and the polar night lasts from December to May.

The entire Yamal territory is covered with permafrost. The thickness of permafrost along the coast is 50-150 m and 300-450 in the north with a temperature of -10 degrees C. In the south, permafrost is 50 m deep with a temperature of -5 degrees C. Swampy-tundra muddy soils are widespread. The flat relief with a large number of depressions facilitate the development of numerous lakes and swamps. There occur buried ice and saline soil with an ice and moisture content of up to 60%. The depth of seasonal thawing varies from 0.3-0.4 m in peat to 0.8-1.2 m in mineral soils.

Due to a large amount of precipitation, moisture accumulates in the upper zone of the soil. Construction is complicated by concentrated soil brines which do not freeze at a temperature of -5 - -10 degrees C.

During the period of spring floods which lasts 70-90 days, the area where the deposits are located is covered by water.

There are no permanent settlements on the Yamal Peninsula.

The unique natural and climatic conditions of the peninsula which are exceptionally difficult for overall development of its oil and gas resources require unconventional bold solutions in the organization and techniques of the development and construction of fields, extraction and transfer of gas, condensate and oil, power and transportation facilities, development of social infrastructure and solution of health-protection problems for the workers.

The scientific and technological progress made the development of any northern regions feasible, making it possible for man to live and work there and to exploit natural resources. It is due to a lesser dependence of new equipment on natural conditions, the high level of automation and introduction of electronic equipment, the possibility of developing materials with prescribed properties and the tendency toward the lowering of material consumption for structures and technological equipment, the appearance of new types of transportation and improvement of the known types, new power and communication facilities, as well as to the introduction of computers for solving complex scientific and engineering problems.

The scientific and technological progress plays more important role on the north in comparison with the well-developed middle-latitude regions. The economic effectiveness of new equipment in northern regions is higher: for example, the same machine, replacing a group of workers, is more advantageous there because it is more expensive to hire and support workers in the north.

The economic effect of new techniques is particularly tangible in the north because they make it possible to complete construction jobs in shorter periods of time, which is very important due to their seasonal nature which is less expressed or does not exist at all in the middle-latitude and southern regions.

It is no coincidence that the relatively high economic effectiveness of new techniques in the north leads to the fact that many scientific and technical innovations find their first application in the north. It will suffice to mention the assembling of buildings from superblocks, welding complexes "Sever-1", soldering of small-diameter pipelines, ballasting with the use of an unwoven synthetic material and many others which found their application for the first time in the Extreme North.

Since the progress of science creates the basis for technological innovations, it is possible to assert that the role of science, just as the role of technology, is considerably greater in the north than in the developed middle-latitude regions.

Inasmuch as this is true, it is necessary to involve the industry's, academic and vuz scientists in solving the Yamal problems. All this must be done in a strictly organized manner within the limits of a single special-purpose program.

For the industry's science, the most important task is to conduct a program of experiments in the laying of connecting pipelines, construction of pile foundations and road building at the Yamburg gas and condensate fields. It is just as important to make correct conclusions from long-term observations of the operation of gas trunk pipelines laid in permafrost and across swampy areas, as well as develop optimal solutions ensuring reliable operation of gas pipelines in combination with environmental protection.

It will be possible to put the fields into operation in short periods of time, which is very important due to the high capital intensity of jobs in the north, only with thorough and timely engineering preparation for construction. We can see that from our and foreign experience. The preparatory period in carrying out large-scale construction programs can considerably exceed the main period of construction. For example, the designing of a 600 km railroad in Labrador, delivery of materials, creation of construction bases and other preparatory jobs took almost six years, while the laying of the railroad tracks took less than a year. Preparations for the construction of the 1280 km long Trans-Alaskan oil pipeline with a diameter of 1200 mm took almost four years, while its construction was completed in almost two years.

In this situation, it is particularly important to have a well organized and thoroughly thought through pioneering approach of the builders to the construction of the Yamal fields and pipelines. The experience in the development of the Yamburg field convinces us that it is necessary to equip the first teams of builders with technological superblock-type block pontoons with production, housing and cultural facilities mounted on them. The studies of the Glavyambur-gneftegazstroy showed that the weight of such floating structures can reach 300 to 3000 tons.

The pioneer complexes will have complete life-support facilities and comfortable living conditions, as well everything necessary for their production activities: shops, garages, warehouses, boiler rooms, electric power plants, pipe-welding and insulation bases.

Such complexes for various purposes are being designed at the SibNIPigazstroy [Siberian Scientific Research and Design Institute for Construction of Gas Industry Enterprises] and EKB [Experimental Designing Office] for reinforced concrete, including their variants providing for the delivery of special blocks by barges.

When preparing the fields for the development and construction of systems of trunk gas pipelines, it is necessary to give special attention to the provision of transportation facilities in advance. The solution of the transportation problem of Yamal should be approached from qualitatively new positions, using widely aerostatic aircraft of great load-carrying capacities (helistats, thermoplanes, dirigibles). Transportation by air and installation from airborne aircraft would cardinaly solve the problem of large-block assembly of field structures and compressor stations. However, judging by the pace and poor organization of the development of such flying vehicles, it is impossible to count on them for Yamal. The volume of freight deliveries to Yamal during the period from 1986 to 2000 is estimated at 50 million tons. Leningiprotrans [Leningrad State Design and Research Institute of the Main Design and Research Association of the USSR Ministry of Transport Construction] proposed twelve variants of the development of transportation facilities on the peninsula, however, they do not have the final transportation scheme.

The transportation scheme includes the delivery of freight by sea to the port of Kharasavey and to the ports on the eastern coast by vessels of the unified Ob-Irtysh River Steamship Lines, and the construction of winter and other roads. However, the bulk of the deliveries of construction materials will be done by motor vehicles.

The organizational and economic plan of the development of Yamal must envisage a high level of industrialization and a wide use of the shift-team dispatch method of work of the builders and operation personnel.

This will be possible only if a strong rear base and housing complexes in base towns are built.

At the present time there is no unanimous opinion about where to place them. There is no doubt that the facilities which have been developed for Urengoy and Yamburg will be used. These are, primarily, the enterprises engaged in the production and installation of superblocs and complete block assemblies of the association "Sibcomplektmontazh" in Tyumen and the enterprises and housing complexes of Nadym and Novyy Urengoy. Production bases will be developed and housing facilities will be built in the Komi ASSR (Labytnangi, Ukhta, Vyktyl).

The delivery to the fields and construction sites of compressor stations and huge amounts of soil and sand and gravel mixture to the gas pipeline routes will be a complex problem.

It will be necessary to bring soil not only for the construction of fields, roads and port structures. Huge amounts of soil will be necessary for filling the sites of compressor stations and for laying of gas pipelines. For example, the volume of fill at the first section of the main compressor station of the Yamal-West gas pipeline will be eleven times greater than the volume of fill for the same compressor station at the Urengoy-Center gas pipeline. The laying of gas pipelines in embankments in sections with layers of ice and icy soils will require 18 m³ of brought-in mineral soil for each linear meter of the route.

Highly icy soils are not suitable for earth backing of trenches, and the replacement with brought-in mineral soil increases the labor intensiveness of jobs by 1.5 times, bringing the cost of 1 km of the gas pipeline in these sections to 2.7 million rubles. The attempts to find local soils were not optimistic at all, and the cost of brought-in earth amounts to 80-100 rubles/m³.

The natural conditions of the Yamal Peninsula do not at all resemble the familiar ideas about continents. This is some kind of an ice-and-earth formation, something in-between the sea medium and the dry land. When building structures under such conditions, we should, probably, depart from the familiar rules of construction.

In arctic conditions, the expenditures with respect to the zero cycle increase by 100-110% the cost of the surface part of industrial structures. Therefore, in the Yamal conditions, it is expedient to build field structures and compressor stations on low reinforced-concrete or steel pile platforms resembling platforms for offshore recovery of gas and oil. In more compact technological units, the principle of vertical arrangement must be used.

The use of modern intensive fire-fighting equipment and new materials makes it possible to reexamine fire prevention regulations. The equipment must be miniaturized to a maximum, must be manufactured in blocks at machine-building plants and fully automated, and it is necessary to use computer complexes.

The use of thermopiles will completely eliminate unfavorable effects of structures on permafrost and it will not be necessary to bring in soil and sand-and-gravel mixtures. This will ensure a high reliability of structures, the modern level of industrialization and fast construction of facilities. It is necessary to work out the designs of this variant now.

Hydraulic calculations have been done in advance for the first time in our practice for all six gas trunk pipelines (Yamal-Torzhok-Uzhgorod, Yamal-Torzhok, Yamal-Gryazovets I, Yamal-Gryazovets II, Yamal-Center I, Yamal-Center II) which will deliver gas from Yamal. This made it possible to optimize the capacity of each main line, substantially reduce the reserve at compressor stations, making their construction less expensive, and to show the advantages of construction at each line of the main section for a pressure of 9.8 MPa.

For the Yamal-West system, at its northern arm, in order to reduce the volume of installation work directly at construction sites, it is planned to use widely a block-container version of the improved GPA-Ts-16 units, as well as GPA-Ts-25.

At the present time, the production association "Nevskiy zavod" [Neva plant] is developing a GTN-32 unit with a capacity of 32 MW. Experience in the construction of compressor stations with GPA-Ts-16 units shows that the construction time is reduced to one half, and the assembly time of the units to one fourth. A electric-drive type EGPA-12.5 units can also find use at the Yamal Peninsula. However, it is necessary to examine the problems of their block-container version with provision for air cooling of the electric motor. Giprospetsgaz (State Institute for the Design of Trunk Pipelines and Special Construction of the USSR Ministry of the Gas Industry) proposed an effective configuration of compressor stations placed directly "on the pipe", which considerably reduces the length of intershop communications, making the construction site more compact.

According to estimations of experts, capital investments into gas transport through a six-line system with a diameter of 1420 mm will be 23 billion rubles, which includes construction and installation jobs amounting to 18 billion rubles.

In its preliminary studies, Giprospetsgaz gave preference to subsurface pipelining in sections of permafrost soils. From the viewpoint of ensuring required carrying capacity of the pipeline in the case of its subsurface pipelining, the greatest difficulties are presented by buried ice, highly icy peat bogs 3-4 m thick separated by thermokarst kettle depressions and lakes, and highly heaving and sagging soils with underlayers of highly icy loam and sandy soil, as well as saline soil and brine. It is planned to cool gas to a temperature of -7 degrees C after its compressing at the first 700 km of the pipeline. Thus, allowing for the throttling effect, its temperature must not be lower than -20 degrees C when it approaches the next compressor unit.

The construction of cooling stations with four individual propane-butane turbo-compressor units is very expensive (23.5 million rubles), just as is their operation in the course of the entire period when the air cooling units (AVO) cannot ensure the prescribed temperature level.

It would seem that by laying a gas pipeline in permafrost and designing the delivery of gas with temperatures from -7 to -20 degrees C, the fixed design position of the gas pipeline must be ensured. However, the designers made provisions for its practically continuous ballasting over its entire length in the permafrost area (440 km), as well as the installation of heat-insulating screens along 28 km of the route. This will require 0.5 million tons of additional reinforced concrete just for one line, and three million tons for a six-line system. The cost of screens from cellular polystyrene will reach 18 million rubles.

How do the designers explain this technical solution? According to their calculations, there will be a summer season before the pipeline is put into operation and, consequently, the trenches may become flooded, the filled soil may thaw out and the pipelines may float up. They base their decision on the possibility of delays with the construction of cooling stations by the beginning of operation and emergency interruptions in their work which can lead to the delivery of "warm gas" at a certain period. These considerations require detailed verification. The section on permafrost can be constructed during one winter season if the remaining part of the gas pipeline will be ready and can accept gas directly before the beginning of its operation. The pipeline is

laid in a frozen trench, covered with soil which acquires a negative temperature, and is delivered also cold if AVO are used in a negative temperature. Thus, even if there is some delay with the completion of cooling stations before the beginning of the summer period, there can be no failures along the route for this reason. And, in general, is it possible to predict delays with the construction of cooling stations if complete sets of equipment are delivered in advance?

For possible delays in the delivery of equipment and construction of cooling stations, Minneftegazstroy developed temporary measures with detailed calculations on a computer which will ensure the possibility of normal functioning of the system until the cooling stations are put into operation.

It is possible to lower the gas temperature in the pipelines by switching AVO from parallel operation to series operation making the best use of the entire available equipment, throttling of gas before delivering it to the pipeline and using expansion turbines.

The use of expansion turbines makes it possible to considerably increase the degree of gas cooling with the same pressure drop as in throttling, or to reduce the loss of gas pressure used for cooling. For temporary cooling of gas, it is possible to use expansion turbine units BTDA-10/10 which are used in field processing systems in complex gas treatment plants(UKPG). During the initial period of field development, the high formation pressure makes it possible to use at UKPG the cold obtained as a result of gas throttling for cooling during the delivery of gas to the gas reservoir. The use of expansion turbines will make it possible to solve the problem of gas transfer at negative temperatures in the entire above-mentioned section of the pipeline.

Depending on the gas flow rate, from 6 to 10 units can be installed on one pipeline with a diameter of 1420 mm. Later, when cooling stations are put into operation, these units, taking into consideration their block-pontoon configuration, can be transferred to UKPG to use them for their direct purposes.

During a short emergency shutoff of gas cooling stations within the limits of a few days, due to the great thermal lag and a considerable reserve of cold, the short-term rise of the temperature of that transported gas will cause minimal thawing of soil which will present no danger to the strength and stability of the gas pipeline position.

Considering the complexity of subsurface laying of gas pipelines and large capital and operation expenses connected with the cooling of gas, it is possible to consider that above-ground pipelining is a fully competitive variant.

Above-ground pipelining, in turn, will require temperature compensation of the pipeline, and, consequently, the construction of movable and fixed supports, as well as heat insulation.

The analysis of methods of above-ground pipelining shows that, for the tundra landscape with a low carrying capacity of its soil, it is advisable to use the "sinuous" method of laying, which makes it possible to lower the load on fixed supports and to abandon the construction of large-size compensators of

concentrated action. In the case of "sinuous" pipelining with small angles of turns equal to 4-5 degrees, the increase in the consumption of pipes for 1000 km will not exceed 2.2-3.9 km, respectively.

The proposed scheme differs from the classical "sinuous" scheme by the fact that the turn angles are secured on fixed supports only on one side of the air route instead of arranging them in the centers of the arms. This makes it possible to work by the flow-line method. The supports are equipped with thermal tubes, which eliminates the transmission of heat from the pipeline to the ground and increases their carrying capacity. The sliding supports which are recommended for use have been tested widely on the Messoyakha-Norilsk gas pipeline system. Above-ground pipelines meet the requirements of preserving natural conditions and ecological balance to a much greater degree than subsurface and surface (in an embankment) pipelines. This is explained by discrete contacts with the surface of the earth and soils by means of individually standing supports. Among other things, this solution helps to preserve the established regime of surface drainage and ground water. In the case of above-ground pipelining, it becomes unnecessary to build cooling stations, bring in large volumes of soil for filling and banking of individual sections, and ballasting process is not needed.

In the case of above-ground pipelining, thermal insulation of pipelines is prescribed only due to the necessity of preventing supercooling of the metal of the pipes in the end section below the temperature of minus 20-30 degrees C, for which the modern pipe steel is designed with respect to the indexes of plasticity and resilience.

Under the most unfavorable conditions, the Yamal gas pipeline can have the temperature of ambient air, i.e., -54 degrees C. A way out of this situation can be found by increasing the plastic properties and resilience of the pipe metal, which, undoubtedly, will reflect on their price. It is true that imported pipes have a large resilience margin. The second direction could be the development of thermal insulation of pipes which would prevent the lowering of the temperature of pipe metal below -30 degrees C. Both of these variants must be objectively evaluated.

There is probably no need to give numerous arguments in favor of the development of Yamal on the principles of interregional utilization of productive forces, since this is quite obvious. The mobility of productive forces in construction is achieved through the use of the shift team dispatch method of work, development of a rear base and a system of enterprises ensuring the highest level of industrialization.

It is advisable to use shift team dispatch methods on the Yamal Peninsula due to its unusually unfavorable natural and climatic conditions for permanent living, economic and social infeasibility of creating permanent populated centers, complex geocryological conditions for town building and the fact that its territory is totally undeveloped.

The working and living conditions on the Yamal Peninsula are extremely rigorous. It will suffice to mention that the discomfort factor which is the combined effect of the air temperature, precipitation and wind on the labor and living conditions of workers, is 3.5 times higher on the Yamal Peninsula than that in the center of the country and 1.3 times higher than in Yamburg.

The cooling potential of man which determines the length of forced idle time within shifts, is 20% higher in the north of Yamal than in the regions of Nadym and Urengoy.

The labor productivity of adapted workers is, approximately, by 30% lower here, and that of unacclimated workers is almost 50%.

The selection of workers for Yamal and the formation of construction and installation organizations must be based on psychological and medical selection which would take into consideration the special characteristics of their activities and complex natural and climatic conditions.

Studies on the human factor in application to the development of the peninsula must occupy an important place in the scientific and production program "Yamal".

It is impossible to use a poorly developed management scheme here. In the north, the effect from advanced organization of management will be immeasurably more noticeable than in the middle-latitude regions. Northern regions are very suitable for checking new forms of economic management organization. Therefore, it is very important to realize a special-purpose program approach within the modern organization of economic control and to create systemic mechanisms of coordination and integration of management in the development of the natural resources of Yamal.

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CONSERVATION EFFORTS

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ENERGY CONSERVATION AT INDUSTRIAL ENTERPRISES

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[Article by Ye.A. Beltyukov, candidate in Economic Sciences, and S.N. Unguryan, engineer, Odessa Polytechnical Institute: "Energy Resource Conservation in Industry"]

[Text] Accelerating the rates of economic development is related to increased consumption of energy resources in industry. A number of objective factors limit the possibilities of covering this increase through drawing new fuel-extracting and power-generating projects into the energy balance of the country's national economy. The cost of extracting energy resources almost doubled on the average in the last decade. Twenty years ago, two rubles of capital investments were spent per ruble to increase the production of fuel and raw material, now it is five rubles, and in the future--seven. This is because of the development of new deposits under the difficult conditions of the country's northern and eastern regions. The cost of transporting fuel and energy resources is growing.

During the next 15 years, demands for energy resources will be satisfied, not by increasing their production, but rather by efficient use and economical consumption.

Measures to conserve energy resources are usually more efficient than is an increase in the corresponding volumes of their production. The expenditures involved in implementing a number of measures to conserve energy resources are two-three-fold lower than the total expenditures for an equivalent increase in production and transportation for their consumers. It is therefore in order that intensifying the development of an energy conservation policy forms the basis of the long-range USSR Energy Program. The organizational-economic reserves from making energy consumption more efficient must be drawn in, along with the set of technical measures.

Industry is a basic consumer of fuel-energy resources in the national economy.

Metallurgy, chemistry and petrochemistry, machine building and metal working have the largest proportion of industrial energy consumption. Their relative proportion in total energy expenditure for industrial needs is about 60% (and about 75% in the energy balance).

With respect to volume, energy resource conservation reserves are concentrated in electrical power engineering, ferrous and nonferrous metallurgy, petroleum processing and the petrochemical industry, the chemical industry and machine building. About 90% of the total saving for the national economy falls to the share of this group of energy resource consumers.

In some sections of industry the proportion of comprehensive energy expenditures in the production cost of the enterprise is up to 50%, in ferrous metallurgy--up to 40% and in machine building--up to 20%.

Lowering the energy consumption by 1% at machine building enterprises reduces the cost of finished goods by 0.2-0.5%, and a 10%-saving of energy resources at the same enterprise reduces the production cost by 2-5%.

A considerable amount of work in energy resource conservation is done at the enterprises, and related to this is a steady reduction in their relative expenditure per product unit. For example, according to the data from the investigation of a number of machine building enterprises in Odessa, with a 4.1% general average-yearly increase in industrial output, the electric energy consumption rose by 2.5%, for fuel--by 2.5% and for heat--by 3.8%.

There are, however, still considerable reserves for energy resource conservation at industrial enterprises. The results of investigating a number of machine-building enterprises showed that out of all the available reserves for saving, only 20-25% are realized, i.e., while on the average, the energy resource conservation is 4-6% of their overall expenditure, an order of 16-25% can be achieved.

The problem of energy usage has technical, economical, organizational, administrative, social, ecological and other aspects. The technical aspects are the most highly developed of these. At present, however, solving the problems indicated requires a comprehensive approach, and the methodology must therefore be perfected: analyzing the energy use, revealing reserves for energy-resource conservation and planning organizational and technical measures to conserve energy resources.

Priority must be given to distributing data on reserves available for saving fuel-energy resources when the problems of energy use in industry are being solved. Establishing the use of the reserves--the basis of production intensification--depends on the position of the level of administration and technical-economic planning at an enterprise.

The order of using reserves in long-term and current plans for introducing the corresponding organizational-technical measures must be promptly recognized, evaluated and established in order to solve successfully the problems of saving energy resources.

Of great importance in this connection is classification of the reserves for energy resource conservation, which is necessary to solve the following practical problems:

Making an analysis of the work of the enterprise in the sphere of energy resource conservation;

Prompt establishment and analysis of the reserves for energy resource conservation;

Determining the degree of priority of a measure for energy resource conservation.

Reserves for energy resource conservation may conditionally be divided into two groups. The first--unutilized reserves for energy resource conservation, which are put into effect by improving the techniques and technology of production and administration on the basis of introducing the results of scientific research and advanced experience, requiring considerable capital investments. The second--energy resource conservation reserves, put into effect by eliminating the losses existing at the work place. It is tied in, not with disclosing new potentials for energy resource conservation, but with insufficient substantiation or fulfillment of the production plan, failure to adhere to technical and technological discipline, a low level of loading the equipment and power units and failure to adhere to conservation systems already known. Putting into effect this group of reserves requires no sort of capital input.

Reserves for energy resource conservation can be classified according to the following criteria:

Technical--introducing energy-saving techniques, modernizing equipment, renovation and replacement of parts and assemblies, installing new equipment, making high-quality and timely repair of equipment, introducing new equipment designs and introducing technology to utilize secondary energy resources;

Technological--introducing energy-saving technology, automating industrial power equipment and industrial processes, increasing the precision of the castings obtained, improving the processes of fuel combustion, using parts made from other materials, raising the quality of the energy, reducing the materials-intensiveness of the output, curtailing losses entailed in deviation from the adopted technology, using new industrial processes and conformity between the capacity of the industrial units and the power drive;

Operating Condition--shutting off equipment in nonworking time, reducing the number of equipment shutdowns and idle times, efficient organization of equipment operation, organizing systematic monitoring of wastage (losses) of energy resources, intensifying the technological processes, heating conditions and fuel combustion processes, reducing the operational time of equipment idling, adhering to optimal systems for its operation, looking after the condition of the equipment and eliminating use of equipment for other than its intended use;

Organizational-Planning--improving work organization according to the norm for energy resources, improving accounting and monitoring of the use of energy resources, compiling balances for fuel, thermal and electrical energy, organizing analysis of energy resource use, improving energy resource consumption planning, improving the planning of measures to utilize energy resources and introducing shop cost accounting;

Social-Economic--introducing an efficient system for material incentive to conserve energy resources, and organizing personnel training in economics, with appropriate instructions on personnel performance, directed toward adhering to an energy resource conservation regime and fostering a prudent attitude toward energy resource use among the personnel.

Practical experience at the enterprises in planning measures directed toward energy resource conservation has shown that there are still many unsolved problems. The same measures are outlined year after year, without consideration and evaluation of their significance in putting into effect the overall plan for energy resource conservation.

An objective establishment of the main directions of conservation for the purpose of working out and putting into effect plans directed toward introducing the most efficient organizational-technical measures to conserve energy resources is of primary importance for a successful solution to this problem. This is connected with the need to concentrate efforts and means in order to solve the main problems in this overall question.

The above classification of energy resource conservation reserves may serve as the basis for forming a system of measures for conservation and efficient use of energy resources.

A method of expert evaluations (method of ranking), based on the data from a questionnaire inquiry of specialists (experts) and the use of mathematical statistics, can be widely used to raise the level of long-term planning of the main effective directions for energy resource conservation in industry. This method can help to determine the relative value of each of the energy resource conservation directions--that is, the weight of each direction of energy resource conservation in the overall total.

As the result of processing the materials from the experts' questionnaire on this problem, we obtained the following weight coefficient with respect to the energy resource conservation factors: technical--0.32; technological--0.27; operating conditions--0.21; organizational-planning--0.15; social-economic--0.05.

For example, the greatest effect in realizing energy resource conservation of 32%, of its total conservation, may be obtained from measures to introduce new equipment and from technical improvement of equipment.

Improving the technology makes it possible to obtain a 27% saving of energy resources, out of the total saving of them, at the enterprise. Measures such as--automating equipment, robot equipment, using new technology, etc.--may be introduced in this direction.

Data from investigating the enterprises showed that measures directed toward energy resource conservation require comparatively low capital input, not over 18% of the total input going into all the organizational and technical measures.

To determine the economic expediency of introducing measures for energy resource conservation, one must calculate: \mathcal{D}_0 is the value of the energy resources saved, in rubles; $a_k \Delta K$ are the additional operating expenditures (depreciation and minor repair and maintenance of new equipment, units, etc.); ΔK are the additional capital expenditures connected with introducing the measures. The economic effectiveness of energy resource conservation is determined by the equation

$$\frac{\mathcal{D}_0 - a_k \Delta K}{\Delta K} \geq E_M$$

where a_k is the proportion of capital expenditures determining the yearly additional amortization deductions and expenditures for minor repair and maintenance of the equipment and units entailed in introducing energy resource conservation measures ($a_k = 0.1$); E_M is the normative coefficient of the economic effectiveness of the capital investments, 1/yr;

The calculations showed that the capital expenditures necessary to ensure conservation of energy resources are economically justified, if they do not exceed quadruple the value of the energy resources saved.

Conclusions

1. Accelerating scientific-technical progress and a shift of the economic system to an intensive course of development increase the demands for energy resource conservation in industry.
2. Industry has large reserves for energy resource conservation, and putting them into effect requires the solution to comprehensive problems.
3. Objective establishment of the main direction in energy resource conservation is of primary importance for the successful solution of these problems.
4. Conservation reserves and the methodology of evaluating the importance of each of these conservation directions must be classified to form a system of measures for energy resource conservation.

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LABOR

LABOR DEPUTY CHAIRMAN INTERVIEWED ON FUTURE WAGE REFORM

Moscow IZVESTIYA in Russian 26 Sep 86 p 2

[Interview with B. N. Gavrilov, deputy chairman of the USSR State Committee for Labor and Social Problems, conducted by IZVESTIYA correspondent V. Tolstov: "Earned Pay: Reform of the System of Payment for Labor Begins"; time and place of interview not given]

[Text] As already reported, the Politburo of the CPSU Central Committee has considered the tasks that arise in the course of the practical implementation of the decree of the CPSU Central Committee, USSR Council of Ministers and All-Union Council of Trade Unions on improving the wage system in the production branches of the economy and raising wages with the use of money earned by labor collectives. An IZVESTIYA correspondent asked B. N. Gavrilov, deputy chairman of the USSR State Committee for Labor and Social Questions, to tell about this in greater detail.

[Question] Which branches of the economy and which categories of employees are covered by the reform? By what percentage will wages be raised, and within what time frame?

[Answer] As we calculate, the raise in wage and salary rates should affect 75 million people employed in all branches of the production sphere of the economy: in industry, construction, all forms of transportation, the communications area, and agriculture. Of course, this will not affect all categories of employees to the same degree. I want to stress that in comparison to similar programs of 1972 and 1975, the present one also differs fundamentally in that it singles out the most skilled employees in every respect.

As for the time frame for the wage increase, that depends on the labor collectives themselves. After all, they must first carry out a full certification of jobs and, possibly, reduce some of them and implement measures for the rationalization of production and improvement of its efficiency. That is, they must find the necessary money. Let me remind you that the principle of the present reform has been tested in practice in the course of the experiment on the Belorussian Railroad. There, before wages were raised a serious rationalization of work was carried out, output norms were revised, and a substantial number of people were released, but in 'he

process the volume and efficiency of production were increased. The money obtained as a result made it possible to introduce new higher wage and salary rates. This is why the time frame for implementing the reform at each specific enterprise will depend entirely on the initiative and energy of its collective and will be determined by that collective itself to the extent that money is found.

Haste is impermissible here. Careful preparatory work is required with literally every person and at every workplace. This was emphasized by the Politburo of the CPSU Central Committee in its decision to appeal to the labor collectives and party, trade-union and Komsomol organizations in connection with the tasks that arise in the course of the practical implementation of the wage reform.

[Question] Many unresolved questions have accumulated in the area of pay. The cumbersome nature of the bonus system is obvious; all sorts of artificial restrictions get in the way; and report padding and the finagling of figures evoke protests. Will the reform help overcome negative phenomena and bring incentives for honest and highly productive labor into play?

[Answer] The existing pay system was not changed for many years, and for this reason a considerable number of problems really have accumulated. It is planned to solve them in a comprehensive fashion--that is, not just to introduce new wage and salary rates, but also to change the entire wage system and employ new forms of pay that have been proven in practice, removing all restrictions. Technically substantiated norms are to be introduced, and wide use is to be made of the scientifically substantiated setting of labor norms.

In all cases, priority in pay is being given to the more skilled labor. The greatest increase in workers' wage rates, for example, will be for instrument makers, machine-tool operators working on unique machine tools, and workers responsible for adjusting automated lines and flexible automated production facilities. Whereas wage rates for workers will rise by an average of 20 to 25 percent, they will rise by 40 to 45 percent for highly skilled workers. In the machinery industry, an eight-grade wage scale with higher pay will be introduced in place of the six-grade scale for such workers for the first time. Workers employed at highly productive equipment and mechanisms--gornovyye working on unique blast furnaces, the engineers of high-speed and large trains, etc.--will be singled out in pay.

On the whole, new rates are to be set for work in various branches, and the skill grades for workers are to be revised. New skill and wage-rate guides will be introduced accordingly. For most workers present grades will be retained, but in cases where machinery, technology or the organization of work has changed, or violations have occurred in the setting of wage rates, the grades must be revised. The basic principle of all these measures is the strict dependence of pay on the quantity and quality of work.

[Question] A collateral question arises here: will the growth of a worker's wages be artificially held down in cases in which his labor productivity is drastically higher than the norm? Can a worker now be sure that if he produces twice as much output, he will also receive double pay?

[Answer] He can be. Now there should be no artificial restrictions or "cutting" of rates. The principle of the new setting of labor norms is: the more one works, the more one receives. If one works twice as much, earnings should be doubled. There is no upper limit for workers' pay. All norms are set for a certain period at the time that jobs are certified, which may be done twice in a five-year period. If the norms are revised, it will only be in a case in which machinery or technology changes, or the organization of work is fundamentally altered. And in the interval between certifications, they will remain unchanged, and if a worker has increased his output by using some sort of attachments of his own or more rational work methods, his pay should be determined strictly in accordance with the norms confirmed during the previous certification.

[Question] The problem of the pay of engineers and specialists has already reached a venerable age, as have the not very funny stories about the pay of a simple engineer and the prestige of engineer's work. What course does the reform propose here?

[Answer] There is a common course for everyone--the creation of effective pay systems that provide incentives for specialists' work.

The problem is that in recent years the incomes of workers and engineers have become more nearly alike, and in a number of cases an engineer even turns out to be worse off in terms of pay. Naturally, the process whereby the most capable and skilled workers move into the engineering corps has weakened, and the prestige both of engineering work itself and of the diploma from a technical higher school has declined. Industry has already felt the consequences of this negative process: there are not enough good organizers of production at enterprises, and the incentive role of engineer's pay has declined. Both the talented specialists and, if you will excuse me, the idler now receive almost identical earnings if they hold equal positions. This is a complex social problem and solving it is one objective of the reform. We see two courses here: raising the prestige of engineering work by remunerating it better and establishing special categories for highly effective work; and, on the other hand, creating a direct relationship between the amount of a specialist's pay and the end results of his work.

The salary rates for specialists have been raised more than workers' wage rates. They will rise by an average of 30-35 percent. Engineers directly employed in developing new machinery and technology are especially singled out. Salary rates for designers and technologists will rise by 35-40 percent. In addition, specialists may also be given additional pay in amounts up to 50 percent of their salaries for high labor results or the performance of especially important work.

Categories have been established for all specialists. They are being assigned not just to engineers and designers but also to economists, bookkeepers, technicians, etc. There are several categories: from basic engineer or economists, for example, to head engineer or economist; and between these, there are two additional steps. Each has its own corresponding salary rate, and the range is fairly wide. In the machinery industry, for example, the

range is from 140 rubles for a basic specialist to 230 for a head specialist. Within each category, the salary is established on the "fork" principle; the difference between the minimum and the maximum has been doubled and is now 40 rubles. All this provides for a specialist's professional advancement up the skill ladder regardless of the job he holds. In this connection, management no longer has any need to observe any "average salary rates," which led to leveling, nor does it need to keep track of the correlation between senior and junior specialists.

In the course of certification it will be determined whether a specialist merits a raise in earnings, within the limits of his job, and transfer to a new category, or whether he will remain in place. The reverse process is also possible--transfer of a weak employee to a lower pay step.

The new pay system will require a certain psychological change. Thus, executives will have to get accustomed to doing without a permanent staffing schedule where everything is cut and dried. Now the selection of specialists in terms of both numbers and skill categories is up to the enterprise, shop or section itself--of course, within the framework of the earned (this I would like to stress) wage fund.

[Question] One must assume that the right of the deciding vote here will belong to management. A fear arises that in the hands of some zealous administrators this right may become a tool for punishing people that cause trouble for them and persecuting them for criticism. Has this possibility been taken into account?

[Answer] Of course, it is impossible to completely rule out the likelihood of abuses. But this is why the procedures for carrying out the certification of jobs and specialists provide for the mandatory participation on the commission of representatives of the party, trade-union and Komsomol organizations. Without their consent, a decision on the elimination of a job or reduction of a salary cannot acquire legal force.

[Question] Another misgiving is connected with the role of higher organizations and the ministries in the process of restructuring the wage system. Won't this process drown in a flood of "interpretive instructions," with which we are so familiar?

[Answer] Today the ministries and departments are fully turning over their rights in this area to the enterprises and can only approve standard management structures as recommended structures--nothing more. No departmental documents regulating the course of restructuring in the pay system at subordinate enterprises are supposed to materialize, not to mention the fact that they cannot have any legal force. What is most important is that this process will take place in conditions of the shift of enterprises to economic accountability and the expansion of their independence. Normative rates will go into effect, and the wage fund for specialists will be determined on the basis of a normative rate starting 1 January 1987.

The role and effectiveness of the Shchekino method are increasing in the new conditions. Today the introduction of additional pay for combining

occupations has been authorized for all enterprises and organizations in the production sphere. The savings in the wage fund realized as a result of the reduction of jobs remains fully at the disposal of the department, shop or section and is subject to distribution among the employees who have assumed the additional work load. The list that limited the combination of occupations is being rescinded. Now the enterprises themselves have the right to decide this question.

[Question] With such profound changes in the principles of pay, is the bonus, which has come to play an extremely unimpressive role as an incentive, being preserved in the wage system?

[Answer] The bonus system has not exhausted its potential, but it requires serious changes. As of 1 January 1987 a new bonus system will take effect. Now the conditions for providing bonuses will not be set for enterprises from above. The enterprises have been granted the full right themselves to work out and approve bonus regulations for both workers and specialists in accordance with the specific features of their production. There is one condition--the bonus should stimulate highly productive and highly skilled labor, the unconditional fulfillment of plans for contracted deliveries, and other indices that reflect the end results of work.

And only for enterprise executives will the basic indices for paying bonuses be established by the ministries. The size of monthly bonuses for executives has been determined: in industry and construction, they are up to 75 percent of salary. What's more, payments according to all sorts of special bonus systems, which previously, let us bluntly say, did not have much effect on executives' interest in fulfilling plans with respect to the basic indices, have now been sharply reduced--in industry, to the equivalent of 2.6 monthly salaries a year.

[Question] In the process of the rationalization of production that precedes the raising of wage and salary rates, some jobs will be eliminated. What awaits those who previously held those jobs?

[Answer] No one, of course, will be left without work. Special measures have been provided for placing released employees in jobs or retraining them. Moreover, during retraining they will retain their average monthly earnings.

These are the basic aspects of the radical restructuring slated for the wage system for employees in the production sphere. It is anticipated that it will be carried out over the course of the present five-year period, but rigid deadlines for implementing the reform have not been established. An enterprise itself must earn the money and, thus, the right to raise wages in its collective. And no one will willfully push it to do so. Except, perhaps, life itself.

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